



**U.S. Army Research Institute  
for the Behavioral and Social Sciences**

**Research Report 1725**

**Follow-on Development of Structured Training for  
the Close Combat Tactical Trainer**

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**U.S. Army Research Institute  
for the Behavioral and Social Sciences**

**A Directorate of the U.S. Total Army Personnel Command**

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Director**

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14. ABSTRACT (Maximum 200 words):  This report describes the work done on the "Structured Training for Units in the Close Combat Tactical Trainer-2" (STRUCCTT-2) Project, a follow-on to the STRUCCTT Project. The purposes of this project were to: (a) develop additional exercises for inclusion in the initial training support packages (TSPs), and (b) develop an orientation course TSP and exercises which are necessary to support the Close Combat Tactical Trainer (CCTT) complete system fielding. This report first summarizes the background (the use of structured simulation-based training in CCTT) and identifies the technical objectives for the project. The development section discusses the processes used to create the TSPs. The formative evaluation section details the project evaluation strategy and method and includes a description of exercise and TSP testing and modification. Following this segment, the lessons learned present issues regarding this project's processes and product development which provide insight and direction for additional developmental work. The final section of the report contains a discussion of recommendations for future TSP development.					
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## FOREWORD

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The use of simulations in U.S. Army training continues to increase, as does the need for tools and techniques for exploiting simulation capabilities. The U.S. Army Research Institute has for the past several years been a leader in the development of structured training approaches providing such tools and techniques, primarily through work accomplished in the Armored Forces Research Unit (AFRU) at Fort Knox, Kentucky. A key portion of this work has been the development of structured training for virtual simulations, focused on execution at battalion-and-below levels. This work began with the development of innovative training methods using Simulation Networking in the Virtual Training Program, and has continued with the extension of these methods to the Army's latest virtual simulation, the Close Combat Tactical Trainer (CCTT).

The work described in this report represents a follow-on to the initial development of structured training exercises and support packages for the CCTT. The initial effort was entitled "Structured Training for Units in the CCTT (STRUCCTT)," and the effort described herein was called STRUCCTT-2. The AFRU accomplished this work as part of Work Package 2124, "Strategies for Training and Assessing Armor Commanders' Performance with Devices and Simulations (STRONGARM)." The relevant requirements document is a Memorandum for Record between the AFRU and the Project Manager for the Combined Arms Tactical Trainer (PM CATT), entitled "Structured Training for the Close Combat Tactical Trainer," dated 25 July 1997.

The training exercises and support packages developed under STRUCCTT-2 have been delivered to CCTT sites at Fort Hood, Texas, Fort Benning, Georgia, and Fort Knox, Kentucky, as well as to the PM CATT and the Training and Doctrine Command (TRADOC) System Manager for CATT. These products support CCTT fielding, and units and site personnel are using them to implement training in the CCTT. This report documents the methods and lessons learned in developing and formatively evaluating these products. It will be useful to individuals and agencies involved in the development, implementation, and expansion of structured simulation-based training, now and in the future.

ZITA M. SIMUTIS  
Technical Director

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This report represents the efforts of an integrated team of military analysts, training developers, and simulation technology experts. A highly skilled and dedicated group of professionals supported the authors on this effort. Ms. Charlotte Campbell, the Human Resources Research Organization (HumRRO) Program Manager, provided overall project leadership. The team of military subject matter experts and training analysts performing a majority of the orientation course initial design work included Mr. Wesley P. Wilson (BDM), Mr. James M. Lewis (PRC), Mr. Jim Castleberry (HumRRO), and Mr. Tim Garth (Litton-PRC). Also, Mr. Neff Jenkins (Litton-PRC) and Mr. Scott Bauer (Raytheon) provided expert military guidance to the development of cavalry troop operations orders. Ms. Rebecca P. Mauzy (Raytheon) provided invaluable training and development expertise during the training support package design and final editing processes. Mr. M. A. "Bud" Dannemiller (Litton-PRC), Mr. Mike Bonnett (HumRRO), and Mr. Daniel B. Mosmeyer (HumRRO) expertly provided technical support for the project. Ms. Katrina Greene (HumRRO) was the team's administrator, keeping the day-to-day operations on track and providing immeasurable support in the final editing and packaging of the TSPs. Graphic art support, including tactical graphics and briefing materials, was expertly handled by Ms. Kari Knight (Litton-PRC). Thanks also go to members of related simulation projects who assisted during critical periods of the project.

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Implementation of the project would have been impossible without the cooperation of a number of other individuals. Members of the Fort Hood and Fort Knox CCTT Pulau Site staff (Mr. Greg Story, Mr. Bert Chole, Mr. Kirt Highberger, and Mr. Dave Merrill, to name a few) provided system access and support, as well as outstanding feedback on our training materials and process. The U.S. Army Simulation, Training and Instrumentation Command (STRICOM) granted us access to the CCTT system throughout the life of the project, with special thanks to Mr. John Foster (STRICOM), Mr. Oscar Ramos and Mr. Dave Johnson (Science Applications International Corporation [SAIC]), and Mr. Randy Howell (Lockheed-Martin) for their support and expertise. Cooperation from Mrs. Ruth Ford (Nations) ensured our efforts matched her computer-based instruction (CBI) prerequisite training on the CCTT system.

Finally, special thanks go out to the members of the 1st Cavalry Division, Fort Hood, TX, who participated in the trials of CCTT training exercises. Their participation was greatly appreciated, providing us with the opportunity to improve the CCTT training support packages and exercises.

# **FOLLOW-ON DEVELOPMENT OF STRUCTURED TRAINING FOR THE CLOSE COMBAT TACTICAL TRAINER**

## **EXECUTIVE SUMMARY**

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### **Requirement:**

The STRUCCTT-2 Project was initiated as a follow-on to the Structured Training for Units in the Close Combat Tactical Trainer (STRUCCTT) Project. The requirement was to produce additional training support packages to include in the structured training program established by STRUCCTT. The project objectives were to: (a) design and develop structured training exercises and TSPs to support complete CCTT system fielding, (b) formatively evaluate and revise the exercises and TSPs, and (c) document lessons learned in support of the future development of training exercises and TSPs for the CCTT and other simulations.

This project extended the core library of training exercises for the CCTT to include: (a) an additional exercise for a battalion task force on the defend in sector (DIS) mission, (b) 12 exercises for heavy cavalry troop and scout platoons on various missions, and (c) a series of CCTT orientation exercises for M1A1/M2A2 pure company and M2/M3 pure company manned modules, Operation Center Workstations, and the Dismounted Infantry Module (DIM).

### **Procedure:**

The STRUCCTT-2 Project involved the creation of exercises for three separate sets of products: battalion task force, cavalry troop and scout platoon, and orientation exercises. The foundation for the three products was the training support package (TSP) designed in the previous STRUCCTT Project which adapted the structured simulation-based training development methodology (Campbell, Campbell, Sanders, Flynn, & Myers, 1995), (Campbell & Deter, 1997).

The structured simulation-based training development methodology includes four phases: (a) initial decisions, (b) designating training objectives, (c) designing the scenario and exercise outlines, and (d) development of the TSP. Product and process assessment occurred throughout the project using a formative evaluation process with a final review at the conclusion of the effort.

The team developed the battalion task force and cavalry troop exercises using revised task force TSPs and the team and platoon TSPs from the STRUCCTT Project. The orientation exercises required the development of a new TSP format (albeit similar in design) to provide the instructions for executing the exercises.

The formative evaluation method included documenting the development process and monitoring the implementation of the exercises in trials using one battalion task force and one heavy cavalry troop at Fort Hood. Staff from the STRUCCTT-2 Project observed each exercise and interviewed participants to obtain feedback for revisions needed to ensure the exercises met

the training objectives. Assessment of the feedback from the trials formed the basis of the lessons learned which provide direction for future CCTT training development and simulation-based training development in general.

#### Findings:

The project objectives were met by providing the required exercises which extended the core library of exercises for the CCTT and documenting the lessons learned as reference for future developmental efforts. The STRUCCTT-2 Project team completed a battalion task force DIS exercise, 12 exercises for heavy cavalry troop and scout platoons on various missions, and a series of orientation exercises to familiarize units with the CCTT. The exercises were merged into the TSP structure established during the original STRUCCTT Project, and the STRUCCTT-2 team documented the revisions implemented to the TSP during the project.

The exercises were run successfully during unit trials and participant feedback was generally positive, although they did identify revisions needed. The STRUCCTT-2 team found that the training participants require the TSP materials to be limited in complexity. As TSP development occurs in the future, effort needs to be placed in making the supporting documentation easy to use. Alternative training media should be explored to more creatively and efficiently deliver information needed by the training units. Unit leadership involvement is critical to maximizing the training opportunity presented with the CCTT.

#### Utilization of Findings:

The specific audience who will find the information contained in this report beneficial includes: (a) training program designers, developers, and implementers; (b) simulation system developers (hardware and software); (c) training unit and training site personnel, and (d) any member of the U.S. Army who wants to better understand the development and evaluation of TSPs in support of the CCTT or other simulation training systems.



# FOLLOW-ON DEVELOPMENT OF STRUCTURED TRAINING FOR THE CLOSE COMBAT TACTICAL TRAINER

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# FOLLOW-ON DEVELOPMENT OF STRUCTURED TRAINING FOR THE CLOSE COMBAT TACTICAL TRAINER

## Introduction

The follow-on Structured Training for Units in the Close Combat Tactical Trainer (STRUCCTT-2) Project added to work done in the initial STRUCCTT Project. The STRUCCTT Project produced a core library of exercises in support of the CCTT Limited User Test (LUT) completed during the third quarter of Fiscal Year (FY) 1997, and Initial Operational Test and Evaluation (IOT&E) scheduled for the second quarter of FY 1998. Though the STRUCCTT Project provided a variety of exercises for the initial testing and fielding of the CCTT, it did not provide some exercises and training support packages (TSPs) needed for complete system fielding (e.g., M1A2 platoon, conventional cavalry troop).

The STRUCCTT-2 Project was established in August 1997, to provide additional exercises to support CCTT system fielding. This report details the exercise development and formative evaluation process for these STRUCCTT-2 components: (a) an additional battalion task force exercise, (b) cavalry troop and scout platoon exercises, and (c) the CCTT orientation exercises. It provides a detailed look at the lessons learned and future considerations regarding further TSP development in support of training in the CCTT along with observations that apply to training program administration and coordination. To provide the reader a comprehensive understanding of the STRUCCTT-2 Project, the background section contains a detailed description of the CCTT, structured training, and the STRUCCTT Project. A description of the organization of the report follows this section.

## Background

### Close Combat Tactical Trainer

The CCTT is the first simulation system being fielded under the Combined Arms Tactical Trainer (CATT) Program. The CATT Program is creating a family of training systems to support the collective training of armor, mechanized infantry, aviation, air defense, engineer, and field artillery units on a virtual combined arms battlefield. The CCTT is the follow-on virtual training system to the Simulation Networking (SIMNET) system used successfully in the Virtual Training Program (VTP) (Burnside, Leppert, & Myers, 1996). As in SIMNET, the CCTT's manned modules represent actual combat vehicles, weapon systems, and command and control elements which are networked to interact in real-time. However, the CCTT uses newer, more advanced simulation technology than SIMNET to include the following: (a) machine guns, (b) popped hatch (M1/M2), (c) thermal and image intensifier sights, (d) the Intervehicular Information System (IVIS) in the M1A2, (e) binoculars, (f) varying weather conditions, and (g) varying time of day. The following description of the CCTT is adapted from the original STRUCCTT report (Campbell, Flynn, Myers, & Burnside, in preparation).

Designed for use by both active and reserve forces, the CCTT is being fielded in mobile and fixed site sets. Both mobile and fixed sites include tank (M1A1 or M1A2) or infantry/cavalry fighting vehicle (M2A2/M3A2) manned modules and the workstations necessary to emulate opposing forces, friendly combat forces, artillery, and critical combat support and combat service support assets. Table 1 lists the components of a CCTT site.

Table 1

CCTT Site Components

Component	Equipment
Manned Modules	M1A1 and M1A2 Manned Modules M2A2 or M3A2 Manned Modules Dismounted Infantry (DI) Manned Modules M981 FIST-V Manned Module M113A3 Manned Module High Mobility Multi-Purpose Wheeled Vehicle (HMMWV)
Semi-Automated Forces (SAF) Workstations	Blue Forces (BLUFOR) SAF Opposing Forces (OPFOR) SAF
Control Consoles	Master Control Console (MCC) Maintenance Console (MC) After Action Review workstations
Unit support or Operations Center (OC) workstations	Workstations emulating the function of other combat, combat support (CS), and combat service support (CSS) elements through the use of SAF

The CCTT fixed sites include enough equipment for training at the company/team level as well as the platoon level, with the ability to conduct up to five simultaneous exercises. In addition, the fixed sites are capable of supporting battalion task force level training for commanders, leaders, and their staffs. In this case, computer-generated forces replicate the unit elements below platoon leader level instead of manned modules. These computer-generated forces are called Semi-Automated Forces (SAF). Friendly SAF elements are called BLUFOR, and they can be "tethered" to manned modules so that they move in tandem with the lead vehicle in the designated formation. Enemy SAF vehicles are called OPFOR.

The site also has control consoles which are used for the set-up, control, and execution of the CCTT training. One of these consoles is the after action review (AAR) workstation, which the observer/controller (O/C) uses to monitor and control the exercises and review performance.

The CCTT Site provides trained personnel, called contractor logistics support (CLS) personnel, to operate the control consoles, including the AAR workstation, and the BLUFOR and OPFOR SAF workstations.

The CCTT site includes workstations for each of these combat support (CS) and combat service support (CSS) elements: (a) Fire Direction Center (FDC) for mortars, (b) Field Artillery Battalion Tactical Operations Center (FABTOC), (c) Fire Support Element (FSE), (d) Combat Engineering Support (CES), (e) Tactical Air Control Party (TACP), (f) Combat Trains Command Post (CTCP), and (g) Unit Maintenance Collection Point (UMCP). The training unit provides personnel to operate these unit support workstations. The site uses the Education of CCTT through Computer Assisted Training Technology (EDUCCATT) training program to provide unit support workstation operators hands-on experience on the functions and capabilities of the CCTT workstations. By incorporating these workstations into the CCTT, the system designers sought to ensure that key members of the combined arms team (combat, combat support, and combat service support) could be integrated into virtual training. The unit support workstation software design requires the operators to be technically proficient in their specialty since it replicates the tasks that the operator would be expected to perform in combat. The mobile version of the CCTT includes sufficient equipment to conduct platoon-level training.

#### Structured Simulation-Based Training

The initial STRUCCTT Project leveraged the capabilities of the CCTT virtual simulation system by creating training support packages to facilitate use of the complete CCTT system (Campbell et al., in preparation), much like the VTP did for the SIMNET system. Both the STRUCCTT and VTP Programs designed their programs based on a training approach called structured simulation-based training. Structured simulation-based training is the deliberate design of training so that it includes events or cues (e.g., scripted radio messages for the O/C) which prompt the performance of particular tasks, subtasks, or actions in simulation (Burnside, Leppert, & Myers, 1996). Within CCTT, structured training for a team or platoon is accomplished using the following: (a) pre-established operation orders (OPORDs), (b) control of subordinate and supporting element activities within specific guidelines, (c) scripted message traffic (which keeps the unit within a prescribed tactical context), and (d) AAR observation forms which focus on actions dictated by exercise flow. It includes an AAR that guides O/Cs to provide feedback focused on the actions of the training audience. Although structured simulation-based training is not confined to the execution stage of the battle, the focus of the VTP and STRUCCTT programs was execution. In the VTP, the training facility provided a dedicated O/C Team. The CCTT does not provide for O/Cs, so higher or sister units must provide O/Cs to support the unit in training. Typically, structured training provides multiple opportunities for units to perform groups of tasks at different levels of difficulty, requiring increasing levels of expertise.

Structured simulation-based training has several advantages (Campbell, Campbell, Sanders, Flynn, & Myers, 1995). It (a) minimizes training development and administration requirements for the unit, (b) immerses units in realistic tactical situations, (c) supports the crawl-walk-run approach to training, (d) focuses on critical tasks, and (e) compresses training time.

## Structured Training for Units in the Close Combat Tactical Trainer

The initial STRUCCTT Statement of Work (SOW) dictated that the STRUCCTT exercises would be execution-focused structured simulation-based training exercises. The following description of the STRUCCTT Project is adapted from the initial STRUCCTT report (Campbell, Flynn, Myers & Burnside, in preparation). The initial STRUCCTT Project created 40 exercises (39 company/team and platoon exercises and one task force exercise). The project team developed the exercises from three tactical missions: movement to contact (MTC), defend in sector (DIS), and deliberate attack (DATK).

Platoon and company/team training. Each platoon and company/team exercise was designed as a table: a short, focused, exercise segment, usually lasting one to two hours, followed by an AAR. Resources were not sufficient to create all the tables necessary to support all three missions through all stages of mission execution from preparation through consolidation and reorganization. The STRUCCTT team developed a subset of tables complete with supporting tactical materials (including 14 OPORDs) for selected phases of all three missions. The proponent selected tables to be developed assuring that most capabilities of the CCTT were used during the IOT&E. Table 3 shows the tables developed for each unit type and echelon during the initial STRUCCTT Project.

The STRUCCTT Team created variations of the basic tables to include differing environmental conditions (day, night, or fog), resulting in the total of 39 platoon and company/team tables and one task force exercise. Within each mission, the sequence of tables was chronological from the initiation of mission execution through consolidation and reorganization. The design also supported crawl-walk-run training with the number and complexity of tasks increasing from one table to the next. The team also created fundamental tables as practice exercises, allowing a unit to rehearse basic combat skills within a less robust tactical context before executing the mission tables. One of the fundamental tables was adapted into a workstation practical exercise (WPE) to provide the O/C and unit support workstation operators with practice in supporting CCTT exercises.

The company/team and platoon TSP consisted of six volumes for unit and site personnel. Volume I provides overview and preparation guidance. Volume II provides train-the-trainer information for the O/C and unit support workstation operators. Volume III provides materials to support the team and platoon practice exercises, called "fundamental tables." Volumes IV-VI provide instructions and materials for unit and site personnel to support the MTC, DIS, and DATK tables, respectively.



Table 2

## STRUCCTT Tables Developed

Unit type & echelon	Table description
Tank Platoon	Fundamental tactical movement exercise Fundamental defense exercise Movement to Contact: First contact Movement to Contact: Develop the situation Defense in Sector: Prepare for the defense Defense in Sector: Defense of a subsequent battle position
Mechanized Infantry Platoon	Fundamental tactical movement exercise Fundamental defense exercise Movement to Contact: First contact Movement to Contact: Develop the situation Defense in Sector: Prepare for the defense Defense in Sector: Defense of a subsequent battle position
Tank Heavy Team	Fundamental tactical movement exercise Fundamental actions on contact Fundamental defense exercise Defense in Sector: Prepare for the defense Defense in Sector: Defense of a subsequent battle position
Mechanized Infantry Heavy Team	Fundamental tactical movement exercise Fundamental actions on contact Fundamental defense exercise Defense in Sector: Prepare for the defense Defense in Sector: Defense of a subsequent battle position
Tank Balanced Team	Deliberate Attack: Breach of an obstacle

Task force training. The training design for the task force exercise followed similar guidelines as the team and platoon exercises (Campbell et al., in preparation). The terrain for the mission was the National Training Center (NTC) central corridor and the design employed the concept of crawl-walk-run. Additionally, the team used the basic operation plans (OPLANS) and OPORDS developed for the team and platoon tables. The exceptions to the design are as follows:

1. Execution time was 4-6 hours.
2. The training unit provided an O/C team with appropriate experience to conduct, control, and evaluate a task force level exercise.

3. As explained earlier, task force level training was designed like a command field exercise (CFX) with the elements below a platoon leader represented by computer-generated vehicles tethered to the platoon leader (Campbell et al., in preparation). Command from simulator (CFS) practice exercises allowed the manned module participants to gain practice working with the computer-generated vehicles.

As shown in Table 3, the MTC TSP contained five parts with a set of appendixes. Though not identified individually, the appendixes contain various TSP support materials (e.g., plan sheets, overlays, mission summaries).

Table 3

Original STRUCCTT Task Force TSP Design

Part	Topic
1	Training at the Task Force Level
2	Training Unit Roles and Responsibilities
3	CCTT Site Roles and Responsibilities
4	Observer/Controller Team Roles and Responsibilities
5	Task Force Movement to Contact (TFAM) Exercise Guide
Appendixes	

Organization of the Report

The remaining sections of this report contain the following information: (a) a description of the STRUCCTT-2 Project, with information on the technical objectives of the project, team organization, and major events in the project; (b) the methodology of the design and development (to include evaluation) of the exercises and training support packages; (c) specific product information which includes design, development, and implementation issues in addition to product evaluation results and lessons learned; and (d) the future considerations.

The next section, methodology, provides information of a general nature across all three products. The sections that follow are divided into three separate product areas: (a) battalion task force, (b) cavalry troop and scout platoon, and (c) orientation exercises. The product-specific sections present the information by the phases of the methodology.

## The STRUCCTT-2 Project

The original Statement of Work (SOW) (U.S. Army Research Institute for the Behavioral and Social Sciences [ARI], 1997) for STRUCCTT-2 provided the following objectives:

1. To design and develop for the CCTT a battalion task force exercise based on the DIS mission and heavy cavalry troop exercises for various types of missions.
2. To formatively evaluate and revise the exercises and TSPs based upon their implementation with at least one battalion task force and one cavalry troop at Fort Hood.
3. To document lessons learned that relate to future development of structured training for the CCTT and other simulations.

The SOW required that the design of the exercises should apply the STRUCCTT methodology (Campbell et al., in preparation), that the CCTT NTC terrain database would be used, and that the exercises take full advantage of CCTT operational capabilities to include dismounted troops, combat support and combat service support elements, and training under both day and night conditions. The SOW further stated the basis of exercise tasks is current relevant field manuals and related documentation. Additionally, the cavalry troop training priority would be on tasks and task elements unique to cavalry operations which were not included in armor or mechanized infantry exercises previously developed. The cavalry troop exercises were to provide a crawl-walk-run continuum of performance difficulty. A subsequent modification to the SOW directed the STRUCCTT-2 Team to develop a series of CCTT orientation exercises using the same approach.

The contractor team presented project objectives, design considerations, and concerns during an initial In-Progress Review (IPR). Battalion task force exercise design considerations included the use of (a) multiple start points, (b) a design similar to that of the MTC exercise, and (c) use of STRUCCTT DIS orders developed previously to support platoon and company/team training. The design approach for cavalry troop exercises was the creation of a minimum of 10 tables on reconnaissance and security missions for troop and scout platoon level training. Some initial concerns identified were the determination of (a) what terrain supports the training objectives, (b) effects of different software versions between Fort Hood and Fort Knox CCTT sites, and (c) the availability of the CCTT sites for use by the development team.

During a subsequent IPR for the initial design of the orientation exercises, the contractor team presented the conceptual design for three types of exercises: mounted crew, dismounted infantry, and unit support workstations. Design considerations included: a) soldiers would receive computer-based training (EDUCCATT) or site-provided instruction on the operation of their workstation or simulator prior to starting the exercise; b) exercises were to take two to three hours to complete; c) each crew or operator would operate independently of other exercise participants; and d) minimal intervention would be required from an O/C or CLS site personnel.

Members of the initial STRUCCTT Project formed the STRUCCTT-2 Team, so the team was experienced in designing and developing training for the CCTT system. The project delivery criteria created the need to develop the products simultaneously; therefore, the team was initially divided into two exercise development teams: the battalion task force team and the cavalry troop team. Each group had military subject matter experts and one training development specialist. After the task force exercise formative evaluation trial, the task force team shifted to the development of the orientation exercises with subject matter experts and training developers involved in the development process. Upon completion of the cavalry troop exercise development effort, all the teams combined their efforts to finalize the orientation exercises and TSP. There was one formative evaluation person to cover all three products.

Due to the expertise gained from the STRUCCTT Project, the team(s) spent little time gaining general knowledge of the CCTT system. Instead, efforts were focused on identifying potential CCTT system limitations that could affect the accomplishment of some tasks and require the development of system "workarounds."

The team established the formative evaluation approach at the start of the project. They created an evaluation plan which identified what information was sought, when and how it was to be captured, and how the information would be used. Details regarding the project, design, development, and implementation were to be captured using a variety of methods (e.g., decision notes, observation, and interviews). The primary means of obtaining unit and site feedback was a one-week unit trial for each product. The team administered written questionnaires, conducted interviews, and documented their own observations during the trials. They used the data gathered to recommend exercise or material revisions and to provide suggestions to benefit future developmental work.

The STRUCCTT-2 Project began in mid-August 1997. Table 4 lists the significant event or decision dates for the STRUCCTT-2 Project:

Table 4

Significant Dates for the STRUCCTT-2 Project

When	Event or decision
Mid-August, 1997	Start of STRUCCTT-2 Project
Mid-September, 1997	Battalion Task Force Design Briefing
15 October, 1997	Cavalry Troop IPR
1-7 November, 1997	Battalion Task Force Trial at Fort Hood
Mid-November, 1997	Orientation Exercises Design IPR and Decision Brief
4-9 January, 1998	Orientation Exercises and Cavalry Troop Trial at Fort Hood
Mid-January, 1998	Final TSP Revisions Meetings for Project
23 March, 1998	Final IPR
31 March, 1998	Submission of Final Report Draft

## Methodology

The STRUCCTT-2 Project used the exercise and TSP design approach established by the STRUCCTT Project, which was based on available structured simulation-based training design and development methodology (Campbell et al., 1995). The methodology consists of four phases as shown in Figure 1 (Campbell, Deter, & Quinkert, 1997).

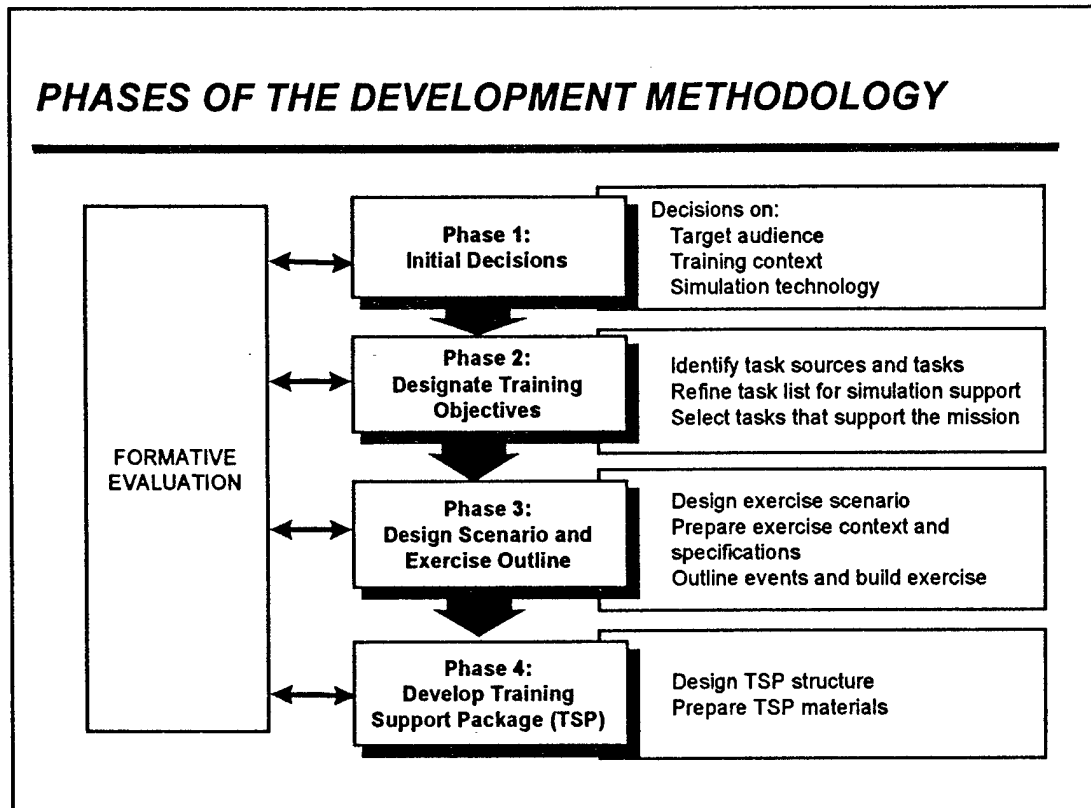


Figure 1. The four phases in the development of structured simulation-based training.

The methodology information discussed below regarding the STRUCCTT-2 Project is divided into these four phases. The discussion within each phase focuses primarily on the products and processes of this project, describing the methodology concepts only when clarification is necessary.

### Initial Decisions (Phase 1)

The SOW required the development of exercises and TSPs for a battalion task force exercise on the DIS mission and heavy cavalry troop exercises on various missions. After the start of this project, the Project Manager for the Combined Arms Tactical Trainer (PM CATT) identified an additional requirement to develop a set of orientation exercises to familiarize unit personnel with the CCTT prior to the execution of tactical exercises.

The team designed the three exercise products for the CCTT NTC terrain database (Primary 2) in support of the collective training of armored and mechanized infantry units. The exercises take full advantage of the capabilities of the CCTT, including the integration of dismounts, combat support, and combat service support elements under both day and night conditions.

The STRUCCTT Project provided the basis for the exercises and supporting TSP design used by the STRUCCTT-2 Project. The SOW required the STRUCCTT-2 Team to select appropriate tasks from current relevant field manuals and related documentation. The specific manuals and documentation used are identified in the individual product sections. The SOW further stated that the formative evaluation be based on only one trial for each exercise by a unit at the Fort Hood CCTT site.

### Designate Training Objectives (Phase 2)

Training objectives were identified using the general mission and scenario decisions as a reference to select the tasks and task steps. For this project, the sources for task selection included the relevant Army Training and Evaluation Program (ARTEP), Mission Training Plans (MTPs), Field Manuals (FMs), and previously established simulation exercises. Task selection and the refinement of the general scenarios and missions were concurrent operations.

As shown in Figure 2, once the team identified a mission task in the ARTEP MTP, the first filter (i.e., criteria used to remove tasks from a list) used in task selection, System Supportability, was applied. System Supportability was defined as the ability of the unit to execute a particular task in the CCTT simulated training environment. The team determined the level of support in the CCTT by reviewing available estimates (highly supported, moderately supported, outside support required, or not supported) provided by the PM CATT and using the judgment of military subject matter experts on the contract team based on their experience with the CCTT. The team defined the second filter used in task selection, Observable/Executable, as whether an O/C could effectively observe a task and provide performance feedback as it occurred in the CCTT. A key feature of structured simulation-based training in the CCTT is the focus on unit execution rather than unit preparation; therefore, a task primarily executed during preparation would likely not be included in a STRUCCTT-2 exercise.

In the last step, the selected task list results from a final review of the candidate tasks as they relate to the proposed mission. The scenario for the proposed mission had been under design development concurrently with task selection as noted above. The team's primary focus during scenario design was to meld task condition statements into a seamless series of segments or events that would be the basis for a proposed exercise. Refer to Appendix C for charts depicting the specific tasks or actions reviewed, deleted, and included for training for the task force and cavalry troop exercises.

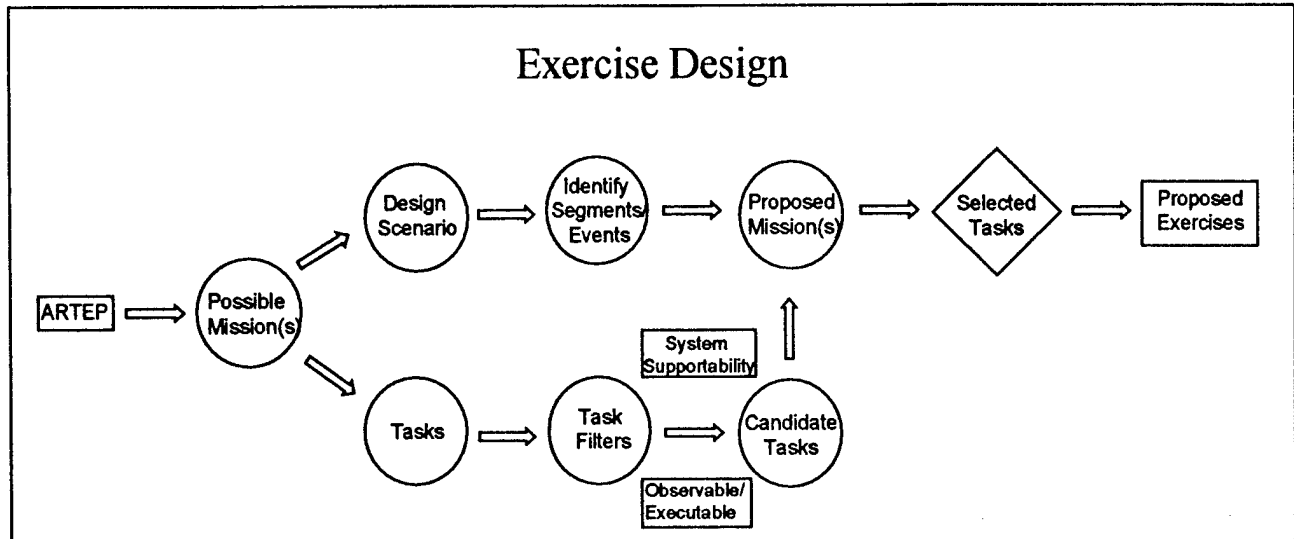


Figure 2. Cavalry troop tables and task force exercise task analysis model.

### Design Scenario and Exercise Outlines (Phase 3)

In this phase, the “concept of the operation” is drafted and the cues with expected actions are established in the materials and exercise files. The team created events from the general scenario and mission. When combined with the selected tasks, events form the basis of the tables or exercise segments. In terms of design concepts, table and exercise segment are similar. The distinction stems from the battalion task force level exercises (MTC and DIS) which are designed to be used as complete exercises; therefore, the partitioning term “exercise segment” is more descriptive in this case. A first step was to adopt the naming convention for the tables or exercise segments which was established in the STRUCCTT Project and shown in Figure 3.

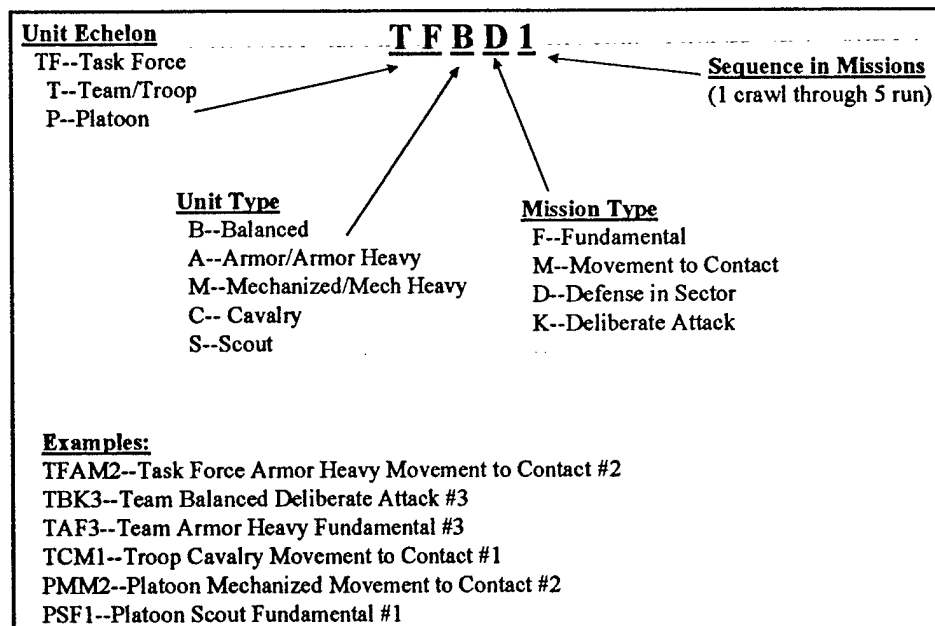


Figure 3. The STRUCCTT table and exercise naming convention.

Based upon the initial mission decisions and the selected tasks, a series of events was designed. Events provide a tactical setting in which cues are planned to trigger the execution of the selected tasks. Throughout the design of the events, the concept of task sequencing with a crawl-walk-run progressive level of difficulty was employed. This was accomplished by changing the conditions (e.g., issuing a fragmentary order [FRAGO], increasing enemy pressure) in which the tasks are performed. After the series of events was laid out, a map "walk through" was conducted to ensure operational and terrain appropriateness. The series of events, linked together, portray the concept of operation for an entire mission.

The team then partitioned each mission at logical points into table or exercise segments, approximately one to two hours in length. There were different options of partitioning considered, the first being based upon the methodology developed under the STRUCCTT Project that used separate, individual (discrete) tables and exercise files. The O/C conducts an AAR after each exercise utilizing the AAR workstation out-the-window "stealth" view to replay unit actions selected by the O/C as training points. The next table selected for training would require system initialization. The STRUCCTT Project adopted this design primarily because the requirement was to develop only selected tables within mission sets. Figure 4 illustrates, for a cavalry troop example, the general sequence of the tables with the activities that take place within each table.

Based on comments from participants in the Cavalry Troop IPR, the STRUCCTT-2 Team considered a second method of partitioning. The thrust of the comments was that unit training in CCTT should not be constrained by an artificial termination to training. This could occur if the exercise file would not allow them to proceed further in the mission even though the unit successfully completed all of the tasks associated with the table. To address these concerns, the team considered building the exercises as a set using one electronic file to allow the training unit to execute a complete tactical mission without the need to stop and initialize a new table. The advantage to this type of partitioning (mission set) is the flexibility for the O/C and unit commander to continue to execute the mission without having an artificial halt. AARs would be conducted when needed by "pausing" the exercise. The CCTT provides the tools for the O/C to pause an exercise to conduct an AAR of unit performance and then reset the exercise back to the desired point.

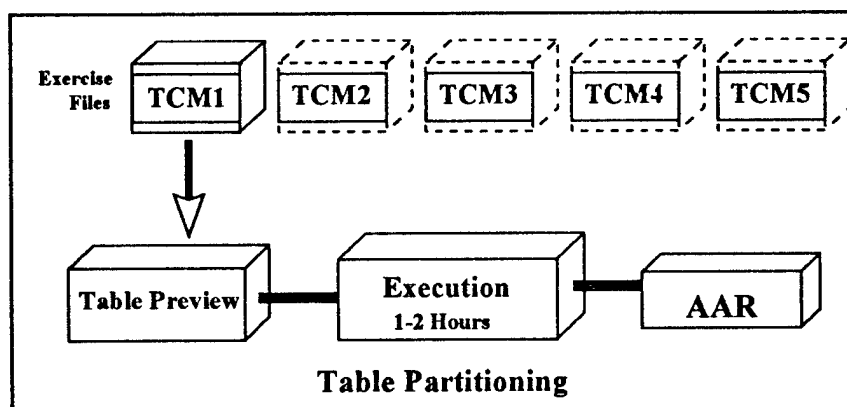


Figure 4. Cavalry troop example of the exercise partitioning option with separate tables.



The CCTT does not, however, allow the electronic data of a previously saved exercise to serve as the initial condition for starting a new exercise without significant modification to an existing electronic file by the CLS site personnel. This meant that a training unit could not end the exercise and later return to restart their training with an exercise that has the same conditions of combat damage, tactical dispositions, ammunition and fuel consumption, and OPFOR status that existed at the end of their previous exercise. Figure 5 below illustrates this type of partitioning.

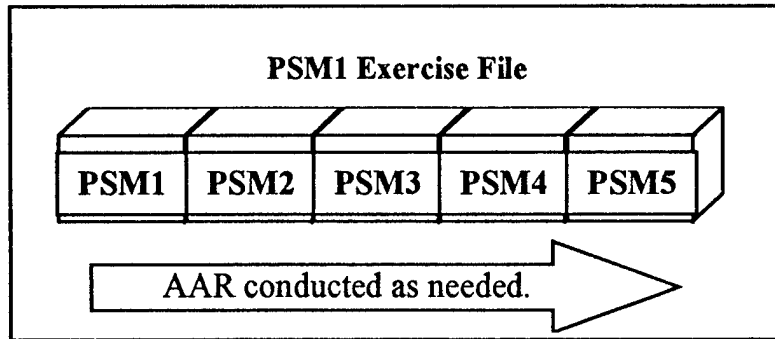


Figure 5. Cavalry troop example of the partitioning option for a mission set.

The STRUCCTT-2 Team selected a third partitioning option, which was a combination of both the discrete and mission set designs. By creating several separate exercise files, the tables or exercise segments were grouped to begin with each individual segment and to continue to the end of the mission. This way the unit could begin with any table or exercise segment within a mission and run the exercise to the end. At any point the O/C or unit commander could pause or stop the exercise to perform an AAR; then either continue the mission, reset to a desired point, or elect to start over with any segment by initializing a new exercise file. While the CCTT limitations described above still existed, the O/C or unit commander could start an exercise closer to the event where it had been ended, rather than having to restart from the initial positions. It is important to restate that if a new file is initialized, the current conditions (e.g., combat damage, ammunition and fuel consumption) will return to the preset or default exercise settings. Again, the use of the AAR workstation "stealth" view would not be available if the exercise was paused.

Figure 6 illustrates the selected partitioning option by displaying the cavalry troop exercise file structure. A similar exercise file structure exists for the scout platoon tables and for the battalion task force exercise segments.

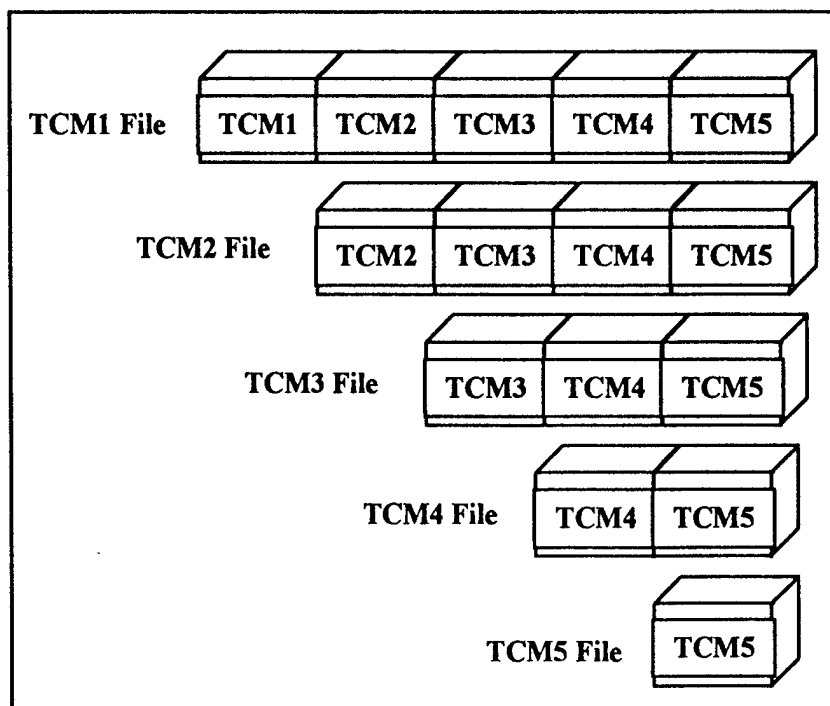


Figure 6. The cavalry exercise file structure.

#### Develop Exercises and TSP (Phase 4)

The STRUCCTT-2 Project followed the TSP design established in the STRUCCTT Project, discussed previously in the introduction, which included unit preparation materials (e.g., operation orders, and overlays), exercise execution materials (e.g., event guides and plan sheets, materials supporting AARs), and train-the-trainer materials (e.g., roles and responsibilities in the CCTT).

A key portion of the TSP is the exercise-specific materials (e.g., exercise guide) which include an exercise overview and pre-execution, execution, and post-execution information. The overview contains: (a) an introduction, (b) an exercise description, (c) a listing of the expected duration of the exercise, (d) the personnel required to support the exercise, (e) the actions covered, (f) how the materials are meant to be distributed, (g) an event description chart, (h) an exercise diagram showing how the exercise is laid out on the terrain, (i) a summary of roles and responsibilities in the exercise for O/Cs and CLS personnel, and (j) a table of contents showing the three sections, pre-execution, execution, and post-execution. The pre-execution portion of an exercise guide provides the information contained in Table 5.

Table 5

Information in the Pre-Execution Portion of an Exercise Guide

Information	Description
System requirements	Provides the system components and quantity needed to execute the exercise.
Overlay and exercise files	Lists exercise and overlays files required to execute the exercise.
Exercise control	Provides the radio nets, call signs, and radio frequencies that the site, the O/C, and the workstation operators will use to control and coordinate the exercise.
Risk of system overload	Lists the approximate entity count and level of risk for a system overload.
Environmental conditions	Provides the exercise environmental conditions (i.e., date/time, visibility, and thermal conditions).
Exercise preview	Provides the starting locations for the various files and the tactical radio nets.

The execution section of an exercise guide contains the event guide and the workstation execution guidelines, as described in Table 6.

Table 6

Components of an Exercise Guide

Information	Description
Event guide	Provides the major exercise events and specific actions required to cue the events.
Workstation execution guidelines	Focus and direct the unit support workstation operators along with the OPFOR and BLUFOR operators as they interact (role play) within the exercise.

Finally, the post-execution section contains instructions and materials for the O/C to present feedback in the form of AARs (or hotwashes, in the orientation exercises). The team revised some of the exercise guide components. These revisions are addressed in the product-specific sections under Develop Exercises and TSP.

One of an exercise guide's components that should be addressed in more detail is the exercise Event Guide. It provides a step-by-step sequence for table execution for the O/C, CLS workstation operators, and unit support workstation operators. Table 7 shows the components of an Event Guide.

Table 7

Event Guide Components

Component	Description
Event and O/C actions	Provides the table event and the communication requirements for the O/C to cue the execution of the event.
Unit action	Provides the anticipated unit reaction to the event cue or sets the condition under which the O/C initiates a cue which will prompt unit action.
BLUFOR and OPFOR action	Provides the BLUFOR and OPFOR computer generated force actions required to execute each event.
Unit support workstation action	Provides the unit support workstation actions required to execute each event.
ARTEP tasks/task steps	Provides ARTEP MTP tasks and task steps for each event in the table. Lists assist the O/C in observing unit performance and providing feedback during the AAR.
Time	Provides space for the O/C to note the time an action or event to be addressed in the AAR occurs in simulation. This will organize O/C feedback and help the AAR workstation operator locate the recorded segment.
Comments	Provides space for the O/C to record comments on the execution of tasks and task steps as they are performed by the unit. These comments will assist the O/C in the AAR.
AAR observation	Provides hints to the O/C and the AAR workstation operator to assist in observing unit performance.
<u>Examples:</u>	
<ul style="list-style-type: none"> <li>• How and where to position stealth (which perspective [enemy or friendly] and direction [from behind, at an angle, etc.]),</li> <li>• What to listen for (spot report, fire commands), and</li> <li>• What to observe (engagements, position of wingmen).</li> </ul>	

Structured Writing. The STRUCCTT Project used the structured writing methodology to produce its TSPs. The structured writing methodology's goal is making documents easier to scan by presenting information in small labeled chunks rather than in lengthy paragraphs (Horn, 1973). One of the lessons learned from the STRUCCTT Project was that the structured writing methodology was beneficial in making the TSPs usable both as read-aheads and as easily-scanned references during exercise execution (Campbell et al., in preparation). Structured writing has also been favorably received when used on previous structured simulation-based training projects. The STRUCCTT Project and STRUCCTT-2 Team used the Information Mapping® software as a structured writing tool.

However, to obtain the desired results from the methodology, the team had to make some modifications. For example, one of the touted benefits of the structured writing methodology is that increased white space makes the information easier to scan and absorb. However, the STRUCCTT-2 Team was concerned that the software often created too much white space at the bottom of the page or forced a small bit of information (called a block) on the next page, causing additional pages to be added to the TSP. One way to counteract this is to put more than one map (i.e., more than one topic) on a page. In lieu of doing that, the STRUCCTT-2 Team decreased spacing before and after blocks, block lines, map titles, etc. to avoid taking up another page unnecessarily. Because this was only done on an "as needed" basis, uniformity of appearance between pages did decrease, albeit only slightly. However, the team judged the decreased uniformity in appearance worthwhile since it saved pages.

Packaging. As in the original STRUCCTT Project, the STRUCCTT-2 TSPs were packaged on compact disks-read only memory (CD-ROMs). However, rather than being packaged on two separate CD-ROMs as in the initial STRUCCTT, the STRUCCTT-2 Team packaged the materials onto two CDs contained in a double CD jewel case titled "Structured Training for Units in the Close Combat Tactical Trainer Version 2.0." The double CD jewel case would make distribution easier. All TSP materials for both STRUCCTT projects (i.e., platoon exercises, company/team exercises, orientation exercises, cavalry troop exercises and task force exercises) were integrated on one CD. The overlay graphic files were on the second disk. The CD contained separate subdirectories to support the different categories of TSPs (e.g., task force, orientation exercises) and a "read me" file to assist in file navigation and material reproduction. A table of contents on the back of the CD-ROM case showed the files contained on each CD-ROM.

### Formative Evaluation

The evaluation strategy for the STRUCCTT-2 Project was based on formative evaluation that occurs throughout the design, development, and implementation of structured simulation-based training, with the emphasis on the unit trials. The SOW stated that all deficiencies or problems regarding the implementation of each exercise would be captured by observation and direct inquiry of the participants in the trial. Though the methodology of formative evaluation as presented by Campbell et al. (1995) recommends a develop-test-revise-retest approach, the SOW

limited the STRUCCTT-2 Project to a single external test using a unit. To minimize the effect of this limitation, the team used expert review prior to the trial to determine what revisions would have a positive impact on the products.

The overriding concept held throughout the evaluation process is rooted in the observation by Oosterhof (1990) that evaluation combines measurement with other information to establish the desirability and importance of what has been observed. Though documenting events and decisions are important (and comprises the bulk of this report), knowing what other options the team considered during the design and development process and why those options were not selected can often provide more insight. The documentation of why something was considered and not implemented would likely reduce development time during future efforts by avoiding the duplication of the same arguments mistaken for “new” ideas. At the very least, it provides a springboard for consideration of alternative approaches.

The team established the evaluation process at the beginning of the project with the creation of a formative evaluation plan. The plan identified three distinct project stages: (a) project development, (b) unit trials, and (c) project conclusion. Within each stage, the plan summarized the type of information to be captured, the method of data collection, who would provide the information, and the intended use of the information.

Table 8 summarizes the project stages, their formative evaluation focus, and the methods used to capture data.

Table 8

Project Stages and the Formative Evaluation Process

Stage	Focus	Data capture method
Development	<ul style="list-style-type: none"> <li>• Exercise Design and Development Process</li> <li>• Exercise Effectiveness (internal testing)</li> </ul>	<ul style="list-style-type: none"> <li>• Observation</li> <li>• Meeting Summaries</li> <li>• Issue/Decision Log</li> </ul>
Unit Trials	<ul style="list-style-type: none"> <li>• Pre-Exercise...materials and preparation</li> <li>• Exercise Execution...tactical flow, materials usage</li> <li>• Post-Exercise...exercise and materials effectiveness</li> </ul>	<ul style="list-style-type: none"> <li>• Survey</li> <li>• Observation</li> <li>• Interview</li> <li>• Hotwash</li> </ul>
Conclusion	<ul style="list-style-type: none"> <li>• Final Exercise Revisions</li> <li>• Materials Revisions</li> <li>• Methodology Revisions</li> <li>• Lessons Learned</li> </ul>	<ul style="list-style-type: none"> <li>• Comment Summary Log</li> <li>• Written Process Summary</li> <li>• Final Report</li> </ul>

The Project Development Stage. This stage encompasses the time from the start of the project to the delivery of the exercises and materials to the site for the unit trial. The concern during this period was the capture of information regarding exercise design and development processes. The team used the information primarily to revise and refine the exercises and TSPs in addition to noting developmental process revisions to include in this final report. The team targeted the STRUCCTT Project personnel and other military experts who assisted in design, review, or advisory capacities to provide the information.

The most difficult aspect of conducting formative evaluation in this stage was to determine the method of capturing the information. Since the creation of the exercises and TSPs continually pass through a review and revise cycle, documentation of all the issues, options, and solutions is cumbersome at best. Additionally, being able to determine the significance of a decision is difficult since the impact of that decision may not become apparent until later in the process. The exercise design and development teams were primarily concerned with meeting production goals, therefore, documenting issues and solutions was not a priority. The team found that to avoid negative impacts on production due to excessive documentation requirements, regular participation by the person responsible for formative evaluation in product team meetings, team leader meetings, and informal conversations with the developers was beneficial.

The team created an information tracking document as an instrument to house all formative evaluation and final report notes (e.g., design decisions, miscellaneous thoughts, meeting and conversation summaries, internal testing observations). The team placed the document on the project's information network, requesting product team leaders and members to update the document regularly. Due to the added burden regular updating would place on the developers, concerns about consistent document management, and the additional benefit of ensuring the evaluation function was fully involved in the process, the team decided to keep the information tracking with the evaluator role. Since the document could become quite sizable, the evaluator coded each entry with descriptive identifiers to ease sorting and information organization. Refer to Appendix B for a sample of the report.

Unit Trial Stage. The information collected during this stage is focused on exercise effectiveness and the use of the supporting training materials. The period of time for this stage begins with the delivery of materials to the site and runs till the close of the training period.

There were three formative evaluation segments for the unit trial stage identified as (a) pre-exercise, (b) exercise execution, and (c) post-exercise. The pre-execution segment includes materials received and activities performed up to the unit's arrival at the site for the period of training. The exercise execution includes information obtained during the actual exercise, with the post-execution focused on input provided following each training session. The type of information sought is summarized in Table 9.

Table 9

## Desired Information From the Unit Trial Stage

Unit trial segments	General information desired
Pre-exercise (excluding orientation exercise)	<ul style="list-style-type: none"> <li>• Were the materials clear?</li> <li>• Were the materials used?</li> <li>• Was information in the materials not needed or omitted?</li> </ul>
Exercise execution	<ul style="list-style-type: none"> <li>• Were the exercises complete?</li> <li>• Was the level of difficulty appropriate?</li> <li>• Was training beneficial and realistic?</li> <li>• Were the supporting materials complete?</li> </ul>
Post-exercise	<ul style="list-style-type: none"> <li>• Were the pre-exercise materials and activities beneficial?</li> <li>• Were the overall training activities beneficial?</li> <li>• What exercise and material revisions should be considered?</li> </ul>

The team targeted the training participants (unit personnel) and CLS staff as the primary sources of feedback. The three methods of information collection used were: (a) individual interviews, (b) questionnaires, and (c) hotwashes (feedback provided in group sessions). Due to the nature of training in the CCTT, in addition to the unit personnel directly involved in the exercise, the unit also supplied personnel to be unit support workstation operators. Since there were specific questions unique to those roles, the unit support workstation operators were given separate surveys. This avoided confusion as to which question a participant should answer, which could skew the survey results. The STRUCCTT Project staff observed the training experience and provided a summary of their observations during the trials.

The team conducted a pre-exercise survey the first day of training which was completed by all available unit and CLS personnel. A difference from the STRUCCTT Project involved scheduling the surveys and hotwashes, for the platoon and troop level training unit personnel, at the end of each training day instead of after each table. This reduced the amount of time unit personnel were involved in non-training related activities. It also provided the unit personnel an opportunity to think in terms of the overall training experience that day and avoided survey and hotwash overload which can produce indifferent responses.

**Project Conclusion Stage.** This stage is important because it combines new information learned from final product and process review with the information gathered throughout the project. This information produces the final revisions to the exercises and TSPs (limited to what can be implemented by the final delivery time frame) and provides the basis for product and process improvement recommendations for future efforts.



To facilitate review and discussion, the team created a comment summary log to contain all comments generated by all interested parties and sorted by product. The project members, the Contracting Officer's Representative (COR), and senior user representatives reviewed the log, with the results of the key discussion points noted in the product lessons learned section. It should be noted the results of the surveys and team observations are reported under the formative evaluation heading for each of the following product specific sections.

### Task Force Exercises

#### Initial Decisions

The SOW established that the task force exercise for the STRUCCTT-2 Project was to be a DIS mission designed like a CFX (i.e., "a field training exercise with reduced troop and vehicle density, but with full command and control..." FM 25-100 [U.S. Department of the Army (DA), 1988b]). As in the MTC task force exercise, the STRUCCTT-2 Team created the platoon elements below the platoon leader using the BLUFOR SAF function which tethered friendly semi-automated force vehicles to the manned platoon leader's vehicle. This process of controlling computer generated units from a manned module is called command from simulator (CFS).

Initial assumptions. Based on the team's MTC exercise development experience, these initial assumptions were made: (a) the unit would have a minimum of four consecutive days for training; (b) the unit would include the MTC exercise in its training plan; (c) CCTT software functionality, relating to the CFS function, was not to be substantially modified after June 1997; (d) the Fort Hood CCTT site had upgraded computer processors, allowing increased replication of OPFOR units and indirect fire effects without degradation of system performance; (e) a mechanized infantry company and CS/CSS slice personnel (Artillery, Engineer, and Air Defense Artillery [ADA]) would be available to support the exercise; (f) the O/C Team would be provided by division or brigade; and (g) the task force would have sole use of the CCTT site during an exercise.

Determining task organization. One of the most difficult design decisions for the task force DIS exercise was the task organization that it would support. The MTC exercise from the initial STRUCCTT Project was tank-heavy. Also, the majority of the other structured simulation-based training programs supported a tank-heavy task organization. (Because of limited number of M2A2 manned modules at Fort Hood, the task force organization for the DIS exercise could not be mechanized infantry-heavy.) However, the unit designated to perform the task force trial at Fort Hood had a "go to war" balanced task force organization. Therefore, the team decided, with COR approval, to design the DIS exercise for a balanced task force.

Establishing exercise modification parameters. Another design decision was how much leeway to allow the unit in modifying the DIS task force exercise. The team presented three alternatives and the advantages and disadvantages of each to the COR for consideration. These three alternatives and their advantages and disadvantages are discussed in Table 10.

The COR directed that the DIS exercise design would include elements of the first and second alternatives. The STRUCCTT Team would prepare the tactical materials, determine the task organization and concept of the operation, and initially position all forces. The task force would be allowed to reposition some of the main battle area forces during the occupation phase of the exercise.

### Designate Training Objectives

The first step conducted for the task force Phase 2 was to review the tasks trained in the STRUCCTT Project MTC exercise. Analysis revealed that many of the tasks used in the MTC exercise were applicable to the DIS exercise as well. In conjunction with that effort, a parallel analysis of the defensive tasks in ARTEP 71-2 MTP (DA, 1988a) was conducted. The results of both efforts produced a list of applicable defensive tasks (see Appendix C) which provided the basis for task force DIS exercise development.

### Design Scenarios and Exercise Outlines

Developing the OPORD. The team developed the operations order for the task force first based on the original STRUCCTT DIS task force order. However, the task organization and scheme of maneuver were modified to make the task organization balanced instead of armor-heavy. Then, because the original STRUCCTT materials did not include a brigade defense order, the team modified a brigade OPORD from an earlier project to create the brigade OPORD with a balanced task organization.

Creating the Events List. The STRUCCTT-2 Team based the events list on the sequence of the defense as described in ARTEP 71-2 MTP (DA, 1988a). As Table 11 shows, the DIS exercise had six events.

Dividing the exercise into segments. Based on the team's preliminary assessment that the task force would need about 12 hours over a two-day period to conduct the DIS exercise, the team grouped the DIS exercise events into five segments. These segments would align both the exercise events list and the brigade and task force operations plan phases so that electronic exercise files could be created later that would match the planning the task force had been undertaking as part of their pre-exercise troop leading procedures process. These segments would also allow the unit some flexibility in deciding whether to run the exercise all the way through or to do only a part or parts of the exercise as time permitted.

Table 10

## Alternatives for Modifying the DIS Exercise and the Advantages and Disadvantages of Each

Alternatives	Advantages	Disadvantages
Unit would run the DIS exercise with the STRUCCTT Team's tactical materials and the organization, concept of operation, and initial position of all forces would be fixed.	<ul style="list-style-type: none"> <li>a) Unit would have a minimal requirement for preparation prior to executing the exercise,</li> <li>b) workload on the CLS personnel at the site would be predictable, and</li> <li>c) electronic files associated with the exercise could be thoroughly tested prior to execution.</li> </ul>	<ul style="list-style-type: none"> <li>a) Loss of a significant training opportunity in defensive planning for the unit commander and staff,</li> <li>b) unit could experience problems with execution due to unfamiliarity with the tactical materials provided, and</li> <li>c) unit would not have an "ownership" role in preparing and executing the exercise.</li> </ul>
The unit would execute the mission based on tactical materials provided by the STRUCCTT Team, but the task organization and tasks to subordinate units could be modified by the unit (with some limitations), and unit would position all forces.	<ul style="list-style-type: none"> <li>a) Opportunity for the unit to perform the majority of critical defensive planning tasks associated with defensive operations,</li> <li>b) the unit commander could modify the task organization and concept of the operation (within limits) to reflect his intent, and</li> <li>c) the majority of routine defensive planning tasks would have been performed by the STRUCCTT Team.</li> </ul>	<ul style="list-style-type: none"> <li>a) Unit would have to perform some tactical defensive planning on a compressed schedule if they were doing the MTC mission first and had waited to begin their defensive planning until arriving at the site.</li> <li>b) CLS workload preparation would increase over the first alternative; however, that increase could be mitigated by limiting the possible changes so that enough time remained to test most of the electronic exercise files prior to execution.</li> </ul>
Unit would prepare its own defensive order based on a provided brigade with some limitations imposed based on CCTT functionality. Also, the unit would position all forces.	<ul style="list-style-type: none"> <li>a) Unit could perform all planning tasks associated with a defensive mission.</li> <li>b) commander's intent and concept of the operation (within CCTT limitations) could be accommodated.</li> </ul>	<ul style="list-style-type: none"> <li>a) Unit would have significant preparatory and troop leading procedure responsibilities compressed into a short time if the unit had not prepared for the defensive mission off-site.</li> <li>b) CCTT Site CLS personnel would have to fully implement, in electronic files, the task force plan and test them in a very short period of time if the task force had not completed its defensive planning prior to arriving in the CCTT Site.</li> </ul>

Table 11

## Events in the DIS Task Force Exercise

Event	Description
1. Occupation	Task force occupies prepared fighting positions, recons routes, and resupplies as needed; reports REDCON1. OPFOR aircraft fly over the task force battle positions. OPFOR reconnaissance platoons probe task force defensive positions.
2. Approach of the OPFOR Main Attack	269 <sup>th</sup> MIBR moves eastward from its assembly areas towards its immediate objective, the Brown-Debnam Passes. As the direction and strength of the 269 <sup>th</sup> MIBR attack is confirmed by the security force, the security force is withdrawn to BP 21.
3. OPFOR Assault	The 1 <sup>st</sup> echelon MIBNs of the 269 <sup>th</sup> enter EA WISCONSIN and are fired upon by task force teams occupying BPs 10, 12, and 13. The task force continues to engage the 269 <sup>th</sup> units until they are destroyed or it loses more than 30% of its combat power. If the task force suffers more than 30% losses, it may displace to subsequent positions. It may also be ordered to withdraw to subsequent positions to maintain FEBA alignment within the brigade.
4. Counterattack	Task force counterattacks in sector to eliminate OPFOR and to establish a defensive line west of PL PHOENIX.
5. Consolidation and Reorganization	Task force issues FRAGO, reorganizes units, and cross-loads ammunition. It establishes defensive positions and prepares for OPFOR counterattacks.
6. Counterattack (Out of Sector)	Task force is directed to execute OPLAN YOYO to secure OBJ CIRCLE to destroy OPFOR units in task force EAGLE's sector.

Segment 1 was designed at a "crawl" level to allow the task force to practice its occupation of defensive positions and to conduct a counter-reconnaissance fight against the OPFOR. During this phase, the task force should verify the positioning of vehicle fighting positions, target reference points, the location of withdrawal routes, and complete other preparatory tasks. The task force is authorized to relocate up to 24 vehicle fighting positions, which represents an average number of vehicle fighting positions which can be created on National Training Center-like terrain in a 24-hour period by a combat engineer company supporting a task force. Once the task force has selected positions that it wants to relocate and has completed its reconnaissance of withdrawal routes and subsequent positions, the simulation is halted to allow CLS personnel to reposition vehicle fighting positions and their associated vehicles. CLS personnel require about three hours to complete this data entry and to verify that the exercise file has incorporated the correct updated positions.

Segment 1 of the DIS exercise satisfied the earlier decision to allow the unit to reposition some of the main battle area forces during the occupation phase of the exercise. Before the trial,

the occupation portion was a separate exercise from the rest of the DIS. After the trial, the team decided to include the occupation as part of the primary exercise. This made it easier and more practical from an exercise administration viewpoint.

Segment 2 starts with the task force defending from existing fighting positions or occupying their relocated positions. The counter-reconnaissance fight is presumed to have ended and the OPFOR mechanized infantry brigade has begun its attack. The size of the initial OPFOR units making contact and the timing of the OPFOR attack from the march makes this segment a “walk” level exercise since there should be sufficient time for the task force to react to the attack. At the discretion of the Senior O/C, the exercise can be continued until its completion. Additional OPFORs cannot be added to this exercise file without seriously risking the ability of the CCTT system to handle the workload.

Segment 3 starts with the security force withdrawn and moved to its subsequent position. Main battle area units continue to occupy their primary positions. The same limitation on adding additional OPFOR that applies to the second phase is also valid during this phase. This segment is a “run” level exercise.

Segment 4 has the task force withdrawn to its secondary positions with remnants of an OPFOR battalion occupying temporary defensive positions within the task force sector. The requirement to conduct a counterattack against the OPFOR makes this a “run” level exercise.

Segment 5 has the task force occupying the same positions as the fourth phase. An OPFOR company-sized unit is maneuvering to threaten the adjacent left flank task force and the brigade orders the task force to attack to destroy the OPFOR threat. This is a “run” level exercise.

Creating the exercise file structure. The team created five exercise files that corresponded with the five phases of the exercise to allow units the opportunity to commence training with the initial starting conditions or to focus its training on a specific phase of the defense. It is important to note, as stated in the methodology section, that each file can continue to the end of the mission. Should the exercise be ended and a new file initialized, all conditions (e.g., combat damage, ammunition and fuel consumption) return to the preset of default exercise conditions. Table 12 provides a listing and description of the five exercise files.

Table 12

## DIS Task Force Exercise Files

Exercise files	Description
TFBD1	Task force is in its initial positions. Designed to allow leaders to practice controlling their computer generated forces and become familiar with their defensive positions. Limited OPFOR to allow for counter-reconnaissance battle.
TFBD2	Main exercise file. Task force is occupying its prepared fighting positions. If task force decides to relocate some of its fighting positions, this is the file that must be modified by CLS personnel.
TFBD3	Identical file to TFBD2, except that security force has been withdrawn to subsequent positions. If the TFBD2 file has been modified, this file must be modified also.
TFBD4	Supports the task force counterattack in sector. An OPFOR MIBN (-) has been located to support the task force counterattack out of sector.
TFBD5	Same starting positions as TFBD4. An OPFOR Forward Detachment has been located to support the task force counterattack out of sector.

Early on in the STRUCCTT-2 Project, the team decided to support the unit conducting the trial by converting the MTC exercise files to reflect a balanced task force with two task heavy and two mechanized heavy teams. To create the two new exercise files needed to run the original MTC exercise as balanced, the team deleted one tank company, substituted a mechanized infantry company, and changed the task organization. The team developed these balanced versions of the exercise files at the Fort Hood site where they remain, and they are being distributed to the CCTT sites at Fort Knox, Kentucky, and Fort Benning, Georgia. However, they were not given to the government as part of a formal deliverable package.

#### Develop Exercises and TSPs

As explained in the Background section, the initial STRUCCTT task force MTC TSP contained five parts with a set of appendixes at the end. Parts 1-4 contained train-the-trainer information. Part 5 was the Task Force Movement to Contact (TFAM) Exercise Guide.

Restructuring the task force TSP. It seemed prudent to minimize the restructuring of TSPs as much as possible for several reasons. First, another project was underway to develop a new exercise management tool which would eventually integrate all the STRUCCTT TSPs, so STRUCCTT-2 TSPs needed to remain similar in design to the original TSPs. Limiting the TSP structural changes also made sense in light of the limited development time between late August and the early November task force trial. However, there were some concerns from the STRUCCTT Project Task Force TSP that needed to be addressed, including: (a) reducing the overall size of the package if possible, (b) reducing the duplication of information, and (c) reviewing the concept of workbooks and how they are distributed (see page 30). Thus the

STRUCCTT-2 Team's primary goal in restructuring the task force TSP was to make it shorter and more user-friendly in its distribution and use.

The TSP design changes that were proposed early on the project included the following:

1. Parts 1-4 were to be made generic to describe task force exercises overall.
2. Part 6 would be added to accommodate the DIS exercise.
3. As shown in Table 13, parts 5 and 6 were to have individual appendixes to address exercise-specific information rather than having one set of appendixes that contained both MTC and DIS tools. For the convenience of the user, having the exercise-specific materials in separate appendixes made sense.
4. The suggested training schedule was to be expanded from three to four days to accommodate the additional task force exercise: two days of preparation, one day to execute the MTC, and one day to execute the DIS. Another day would be required if the unit needed familiarization training (i.e., they would if they had not trained in the CCTT in the past 180 days). Assuming the training unit needed familiarization training and they wanted to execute both the MTC and DIS exercises, a total of five days would be needed for training. Refer to Appendix D for a complete recommended five-day training schedule.

Table 13

MTC and DIS Task Force Exercise Appendixes

Appendix	Topic
A	Brigade OPORD and Overlay
B	Task Force OPORD and Overlay
C	Communication Materials
D	Supporting Documentation
E	Workstation Execution Guidelines
F	Exercise Observation Forms
G	Exercise After Action Review Materials
H	Exercise Task Chart

Reducing redundancy and making the TSP shorter. To reduce the redundancy in the materials and make the TSP shorter, the team restructured Part 4. The original Part 4 consisted of 12 chapters of materials for 11 different members of the O/C Team. The instructions in chapters 4-12 were largely redundant but with some role-specific instructions and tools provided. This raised a common issue in training development: packaging for a single role

versus packaging materials for similar roles together. The single role packaging lengthens the TSP overall and makes the developer's job more difficult as changes must be made to multiple versions. However, it is more convenient for the user and more personalized to have only his/her own instructions included in the package. On the other hand, packaging instructions for similar roles together shortens the overall package length and makes changes easier on the developer. In this case, the instructions are less personalized and a bit less user-friendly.

The STRUCCTT-2 Team opted to combine instructions for similar roles together. The new version of Part 4 combined chapters 4-12 into one chapter, Chapter 4, as shown in Table 14. The pre-exercise and exercise preparation sections for all the positions were largely generic. The execution and post-execution sections (e.g., sections 3 and 4) were much more role-specific; sometimes an entire page of instructions would apply only to one category of O/C, such as the Higher Headquarters (HHQ) Controller. When this happened, the instructions told the reader "HHQ Controller only."

Table 14

Task Force TSP's Restructured O/C Team Train-the-Trainer Materials

Chapter	Title
1	Observer/Controller Team Organization and Roles
2	Senior Observer/Controller Role and Responsibilities
3	Exercise Controller Role and Responsibilities
4	Other Observer/Controller Team Members' Roles and Responsibilities

Because this redesign did not take place until after the trial, the team does not know if there is a positive impact for the O/C team by combining similar roles into one chapter. It could be the original design was better from a user's perspective. Furthermore, the TSP developers realized the perceived length and redundancy of the original TSP was based on the artificial circumstance of someone reviewing the entire TSP (e.g., the shelf version rather than the distribution set). In the trial, the Senior O/C and the Exercise Controller, two members of the O/C Team who were in leadership positions for the task force exercises, were indeed given the entire TSP to review. However, their materials were streamlined after the trial. Future TSP design should concentrate on giving each role what he/she needs from the distribution set and be less concerned with the overall length or contents of the shelf version of the TSP.

The team also scrubbed Part 1 to reduce duplication between it and the role-specific chapters in parts 2-4. One of the most difficult dilemmas in designing a TSP is determining the amount of information that should go into the initial introduction to the program. It is tempting to put a lot of explanatory background information up front. Then one is inclined to duplicate that information in the role-specific chapters, realizing many users, if short of time, will skip any program introduction verbiage and go right to the chapter written specifically for their role. This makes for a TSP with a lot of redundancy. To minimize this, the team decided to keep Part 1, the



program introduction, as brief as possible with only the essential explanations and to save the more detailed information for the role-specific chapters.

Making the observation forms more specific. The COR also directed the STRUCCTT Team to redesign the observation forms to enable O/Cs to collect more specific information rather than just general comments on task performance. The MTC observation forms were simply a listing of the tasks and task steps from ARTEP MTPs with spaces for writing observations beside each. To design new observation forms for the DIS exercise, the team reviewed checklists for other structured simulation-based programs involving battalion staffs. The Staff Group Trainer (SGT) Program focuses on training subsets of brigade and battalion staffs and features computers networked together to present tactical reports from a pre-recorded battle to the staffs (Koger et al., in preparation). This program used a checklist design which provided feedback to the staff sections on whether staff-section specific actions (e.g., S2 analyzes enemy effort and tracks enemy battle losses) took place, related the expected staff actions to MTP tasks and task steps, and provide coaching questions to help the observer coach the staff section. However, this program had completely pre-scripted execution which made it easier to state what staff section actions could be expected in response to each critical event. Thus, one of the key issues for the STRUCCTT-2 Team was evaluating to what extent the STRUCCTT exercises were pre-scripted (e.g., what events could be expected to happen during the course of the exercise and whether there were expected actions that the staff section/company/team should take that could serve as performance standards). Because the STRUCCTT exercises were structured by message traffic from higher elements via the event list, observation forms were created that were more specific than the original MTC version although not as detailed as the SGT Observer Checklists.

In the new DIS version, the observation form provides recommended actions based on ARTEP MTP task steps that the staff section may take in response to the activity. The ARTEP MTP task steps reference is listed beside each action. Coaching questions are provided to help the observer determine whether or not the staff sections or company/teams performed the actions correctly. The coaching questions are not meant to be all-inclusive, merely prompts to the observer. The observer circles an "S" or an "I" indicating whether the staff section or company/team should sustain or improve their performance of that action and records his/her comments on the staff section's performance of each staff action. ARTEP MTP references, tasks, and task standards are provided along the bottom of the form to help the observer further analyze his/her assigned staff section's performance for that activity. An example of the revised observation form is provided in Figure 7. Prior to the completion of the project, the team revised the MTC observation forms to be structured like the DIS observation forms.

Changing the TSP to support multiple task organizations. The team had written the task force MTC exercise for an armor-heavy task force; however, the DIS exercise was developed for a balanced task force. The TSP materials for the MTC exercise in the TSP still supported an armor-heavy task organization. However, team decided that the availability of the exercise files to support the balanced version of the MTC exercise should also be explained in the revised TSPs along with instructions on what changes would be necessary if the exercise were run as balanced (e.g., changing the task organization in the OPORDs). Also, the names of several of the BLUFOR and Observer/Controller roles changed with the task organization (e.g., Company

B O/C for Armor-heavy versus Team B O/C for balanced). In the final version of the package, the word "team" was used most often with a note that it would be "company" if the armor-heavy task organization was in effect.

Making the distribution set. As Campbell and Deter (1997) explained, there is a "shelf" version and TSP materials (the master set) that is generally copied and assembled into smaller role-specific packages (the "distribution" set) for the convenience of the user. What portion of the TSP each role needs in his/her distribution set and how to get that subset easily have been issues throughout the development of structured simulation-based training. The shelf set of the TSPs for earlier projects were accompanied by instructions on how to reproduce and distribute the materials in lieu of pre-assembling the distribution set.

The initial STRUCCTT Team decided to make task force TSP distribution easier by assembling master paper versions of workbooks (distribution sets) for the training units to reproduce. Even though they were much more knowledgeable about the pieces and parts than the training units would be and had actually written the assembly instructions, the team found the creation of the workbooks from the shelf set of the TSP to be tedious, difficult, and time consuming. For STRUCCTT-2, the task of distributing the materials increased proportionately as the TSP expanded to support a second exercise. Thus, the STRUCCTT-2 Team decided that the task force TSP was too complicated to simply provide the unit the shelf set along with instructions to the unit on how to produce the distribution set. The team decided to create paper and electronic versions of the distribution set and have them available at the site in hard copy and on the CD-ROM.

Creating an electronic version of a distribution set from a shelf set TSP is not an easy job, however. For one thing, the overall structure of the shelf set TSP (chapters, sections, page numbers, headers and footers, etc.) interferes with the materials being easily pulled into a separate document. Also, if only a portion of a larger part is being given (e.g., the user is given only one annex of the overall brigade order), new cover sheets have to be created which explain only what the user is getting. File size also becomes a problem. Originally, the STRUCCTT-2 Team tried to keep the file size of each roleplayer's materials below 1.4 megabytes (MB) so that they could be transferred to floppy diskette in case the user did not have a CD-ROM drive. To this end, most of the workbooks were subdivided into two separate files with the MTC exercise materials in one file and the DIS exercise materials in a second file. However, even after reducing the resolution on the electronic versions of the overlay graphics to save memory, the team found that some overlays themselves could not be reduced below 1.4 MB, and it was deemed undesirable to have more than two files comprise a workbook. The lesson learned is that the distribution set of TSPs, like the shelf set, cannot be expected to be transferable onto floppy diskettes. The memory requirements of the graphics means that TSP users must have CD-ROM drives to access the TSP materials.

S2 Section Observation Form: TF DIS EVENT 1: Occupation				
Activity	S2 Section Actions	Sustain or Improve (Circle One)	Comments	Coaching Points
Enemy recon elements make contact with TF security element.	The S2 Section receives the contact report (3905/2),	S I		Did the S2 receive the report? What is the composition & activity of the recon elements?
	posts the report on his map (3906/6),	S I		Was the report posted promptly and accurately?
	analyzes the report (3906/6),	S I		Did the S2 analyze the information?
	updates the template (3906/6),	S I		Was the sit template updated for locations and times?
	updates the TF CPs & command element of enemy activity and intent (3905/3)/(3906/7), and	S I		Were the CPs and command elements informed?
	updates Bde S2. (3905/3)/(3906/10)	S I		Was the Bde S2 informed?
<b>S2 Tasks:</b>				
7-1-3905	Perform intelligence operations	<b>Task Standards</b> <ul style="list-style-type: none"> <li>All available information about the enemy capabilities, terrain, and weather necessary to plan, coordinate, and perform combat operations is identified, reported, and used.</li> <li>TF obtains all PIR/IR in the TF sector.</li> <li>All Bde-directed intelligence acquisition tasks on the enemy, terrain, or weather are accurately collected and reported by the battalion.</li> </ul>		
7-1-3906	Perform S2 operations	<ul style="list-style-type: none"> <li>The S2 section collects, analyzes, and disseminates information on enemy, terrain, and weather timely and accurately, which allows the TF to conduct combat operations.</li> <li>The S2 section prepares and updates IPB that is 70 percent accurate and prevents the TF from being surprised by the enemy.</li> <li>Templates are validated with updated information gathered.</li> </ul>		

Figure 7. Example of observation form.

Finally, since the STRUCCTT-2 distribution set is not electronically linked to the shelf version of the task force TSP, both do not update simultaneously. The Staff Group Trainer Program created an automated assembly program to make workbooks that are electronically linked to the shelf version of the TSP so that both are updated at the same time (Quensel, Sanders, & Brewer, 1997). Unfortunately, the Staff Group Trainer's automated assembly was not created in time for use in the STRUCCTT-2 Project. However, in the future, if STRUCCTT TSPs are to be created, the shelf and distribution sets of the TSPs must be linked.

What to include in the distribution set. The STRUCCTT-2 Team determined packaging the materials each role needed into one book, called a "workbook" in previous projects, was not adequate. There were materials that were meant to be read beforehand (e.g., role and responsibility descriptions, program description) for personnel performing their roles for the first time in the CCTT, and then kept as reference. Then there were exercise-specific tools to be used during execution. Thus, the STRUCCTT-2 Team decided that each role should receive two categories of materials: (a) pre-exercise materials (extracts from Parts 1-4) that should be studied in advance and (b) a workbook containing the tools (primarily from Parts 5 and 6) that each support person and the unit leader uses *during* execution.

With the materials categorized, the team debated which pre-exercise and workbook materials should be given to each O/C. Only the Senior O/C, Exercise Controller, unit leader, and AAR workstation operator needed to have Part 1, the program overview, included in their pre-exercise materials. For the workbooks, only the unit leaders received the complete operations orders; the rest received overlay orders. Another issue was the role of the lead AAR workstation operator and whether his materials should be packaged separately from the other AAR workstation operators since he has a leadership role in overseeing the other CLS workstation operators. The team decided to produce only one version of the AAR workstation operator workbook which included everything the lead AAR workstation operator would need to perform his role—even though these tools would not be needed by non-lead AAR operators. In the future, it could be decided the lead AAR workstation operator's role is different enough to merit pre-exercise materials and workbook materials tailored to him alone. Finally, one item in the TSP, Appendix A, the acronym list, was not included in any of the workbooks.

The pre-exercise materials were pre-assembled electronically for only the unit leaders, Senior O/C, and Exercise Controller on the CD-ROM. Instructions were provided in the TSP Overview on how to assemble the pre-exercise materials for the unit support workstation operators, other O/Cs, and the CLS workstation operators. It should be noted that in future efforts, all of the pre-exercise materials should be pre-assembled to decrease the burden on the unit. Every role did have an electronically pre-assembled exercise workbook on the CD-ROM as well as in hard copy at the CCTT Site for distribution.

### Formative Evaluation

The formative evaluation process identified needs for revisions of the exercise and supporting materials. These needs, as described in the methodology section, surfaced through the development team observations, interviews with the exercise participants, and questionnaire type

surveys. Before highlighting the survey results, it is important to understand general information regarding the training participants. Table 15 identifies the three categories of participants completing surveys: (a) the training unit, (b) the O/C team, and (c) the CLS personnel.

Table 15

Task Force Participant Demographics

	Number of members	Average years in service	Average years in grade	Trained at NTC (past 2 years)	Trained in simulation (past 2 years)
Training unit	50	5.7	1.9	46%	24%
O/C team	10	8.7	3.3	90%	40%
CLS site staff	10	20.2	NA	NA	NA

Note. NA = not applicable

The O/C team was comprised of one lieutenant colonel, two majors, five captains, and two sergeants (E5, E6). Of those team members, 70% were in their current duty position less than one year and another 20% in their positions less than two years. The composition of the training unit was: 10 unit support workstation operators, 14 vehicle commanders, 19 task force staff, and 7 company and task force leadership personnel. Of the unit members surveyed, 70% had held their current duty position less than one year and an additional 16% had less than two years. The CLS team, comprised of simulation technicians (90%), had an average of two and one half years as simulation technicians.

Due to delivery time constraints, the participants only received the MTC exercise materials and did not receive DIS exercise materials prior to the trial period. The demographic survey instrument included questions regarding the pre-exercise materials received by the unit. Since the questions answered by the unit were pertaining to MTC exercise materials only, the survey questions and results are not included in this report. Also, the sample sizes were very small, especially for the O/C and CLS teams. Therefore, the results are used to support the development team's observations and unit interviews instead of representing conclusive findings.

Exercise Materials. Though 50 unit members participated in the demographic information survey, the development team administered the post-exercise survey to platoon leader and above only. Twenty-seven of the approximately 30 expected unit members completed the survey. The first series of questions focused on the DIS exercise materials the training unit and O/Cs received upon arriving at the site. Tables 16 and 17 provide details regarding materials received by the O/Cs and unit respectively; providing favorable results with the exception of the CFS and WPE exercises. Though not reflected in a separate table, the CLS team provided similar positive responses noting 83% found the exercise guide in particular useful or somewhat useful in preparation of the exercises. Refer to Appendix E for details of each survey.

Table 16

## O/C Team Exercise Material Usage

Materials	Number of O/Cs receiving it	Of those, who read/used it (%)	In preparing for exercises, those indicating it was useful or somewhat useful (%)
DIS Brigade OPORD (Appendix A)	6	67	50
DIS Task Force OPORD (Appendix B)	10	80	63
Workstation Execution Guidelines (Appendix E)	4	50	100
DIS Exercise Observation forms (Appendix F)	9	100	78
Exercise AAR materials (Appendix G)	7	100	75
Defense Occupation Exercise (Appendix I)	7	71	80
O/C Team Roles & Responsibilities (Part 4)	8	75	83
CFS Practical Exercises (Appendix B)	2	50	0
Workstation Practical Exercise(Appendix C)	2	50	0

Table 17

## Training Unit Exercise Material Usage

Materials	Number of unit members receiving it	Of those, who read/used it (%)	In preparing for exercises, those indicating it was useful or somewhat useful (%)
Training Participant Roles and Responsibilities, Part 2	6	100	67
DIS Brigade OPORD, Appendix A	7	86	50
DIS Task Force OPORDS, Appendix B	14	93	69
Communication Materials, Appendix C	4	75	67
Execution Guidelines, Appendix E	18	94	100

The results indicate that not everyone received the materials they needed, or they did not understand what they received. It should be noted the team did not directly control the distribution of the materials to specific individuals. For example, the development team expected four O/Cs (not two) would indicate they received the CFS materials. Also, the team expected approximately 11 unit members (instead of 18) would indicate receipt of the execution guidelines. Therefore, it is difficult to make any conclusive inferences regarding the usefulness of the materials read or used by the participants. Additional thoughts regarding the issue of evaluation control are located in the general lessons learned section under formative evaluation issues.

The development team's observations and unit interviews during the trial support the overall positive nature of the survey responses. The unit did mention in interviews they were not completely satisfied with the OPORDS, which is also reflected by the survey results. Specific suggestions received during the unit interviews resulted in several revisions to the brigade and task force OPORDS found in Table 18.

DIS Exercise Preparation Activities. The next series of questions in the post-execution survey focused on activities the O/Cs and unit conducted in preparation for the DIS exercise. Included are all activities (e.g., orientation exercises, MTC exercise and related activities, DIS rock drills, defense occupation exercise) the unit conducted upon arriving at the site. Over 80% of the respondents rated the activities as useful, fairly useful, or very useful; with the MTC exercise (and related activities) receiving the highest response of 96%. The initial site briefing and the command from simulator exercise, though still positive, received the lowest responses from the unit, 65% and 63% respectively. There are no data available to clarify why these responses were so much lower, except speculation that the length of time between conducting the exercise and the survey (four days) may have been a factor.

DIS Exercise Execution. There were several questions regarding the execution of the DIS exercise which generally received favorable responses. Overall, 67% of the O/Cs and 64% of the unit felt the sequencing of events, appropriateness of the tasks, and the matching of tasks to events needed little or no revision. Though there were comparable results regarding the inclusion of appropriate tasks, the majority of the O/Cs (87%) felt the exercise represented a complete set of events and tasks for the mission while only 36% of unit respondents felt similarly. Observers found it was not uncommon to hear interested parties watching the trials indicate the exercises were not difficult enough. The O/Cs (66%), however, indicated the level of difficulty to be about right, with 89% of the unit members (platoon leaders and above) providing the same response. Therefore, the team felt revisions to increase the difficulty of the exercise were not necessary. Perhaps the responses regarding the difficulty level between those watching the exercises, the O/Cs, and the unit members indicate the degree of involvement in the exercise affects the perceived level of difficulty.

Over 70% of the responses indicated the message traffic from higher headquarters and adjacent units was either realistic or somewhat realistic. Approximately 60% of the responses indicated the amount of traffic from higher headquarters was about right; however, 50% felt message traffic from adjacent units could increase. Also, over two thirds of the O/Cs and unit members agreed the use of the CFS (technique for controlling subordinate vehicles) was not realistic because the vehicles did not respond promptly. The O/C team indicated (67%) they felt the use of the CFS detracted from the value of the training experience, while the unit responded with 38% to the same question. Combining these results with the development team's

observation and unit comments, some of the dissatisfaction with the CFS stems from system problems throughout the week causing CFS to operate erratically. In light of the system problems and striking difference between the O/C and unit responses, the impact of CFS on a unit's training experience needs further testing.

Table 18

Revisions to Brigade and Task Force OPORDS

Revision	Rationale
<u>Brigade OPORD:</u>	
Modified task force Falcon's sector	Trial unit thought the sector was too wide
Deleted references to "risk" in commander's intent	Newly published FM 101-5-1 deleted risk from commander's intent
Modified "Fires" paragraph and Annex D (Fire Support)	Subject matter expert review
Modified "Engineer" paragraph and Annex F (Engineer)	Subject matter expert review
Clarified task and purpose for subordinate units	Based on recommendation from the Infantry School
<u>Task Force OPORD:</u>	
Modified the task force sector	Trial unit thought the sector was too wide
Deleted references to "risk" in commander's intent	Newly published FM 101-5-1 deleted risk from commander's intent
Included enemy courses of action	Enemy courses of action needed for Annex B of TF OPORD
Developed a SIT TEMP	Enemy courses of action needed for Annex B of TF OPORD
Modified "Fires" paragraph and Annex D (Fire Support)	Subject matter expert review
Modified "Engineer" paragraph and Annex F (Engineer)	Subject matter expert review
Clarified task and purpose for subordinate units	Based on recommendation from the Infantry School

A few questions, directed only to the unit, focused on their perceived proficiency of task execution during the DIS exercise. They were asked how well they felt they could perform the tasks before and after the training period. Also included were similar questions regarding the proficiency of the task force. Of the 21 respondents, 57% indicated their own proficiency improved and 62% believed there was improvement at the task force level.



One significant revision, the integration of the Defense Occupation Exercise into the DIS exercise, was the result of the observations by five members of the development team. The initial design of the task force DIS exercise identified a requirement for the unit to practice entering prepared vehicle fighting positions, developing sector sketches, reconnoitering its subsequent positions, and performing other activities associated with occupying a defensive position. This practice period became the Defense Occupation Exercise. A major component of this exercise was to afford the unit an opportunity to adjust its prepared fighting positions, ensuring the engagement area coverage matched the commander's concept of the defense. When this exercise was executed during the trial, both the unit and the O/C Team did not fully understand the intent of the exercise. It appeared to them to be an additional practice session with little bearing on the overall conduct of the defense. The unit commander made participation in the exercise optional for his subordinate commanders. To eliminate confusion about the purpose and intent of the Defense Occupation Exercise, it was eliminated as a separate activity and incorporated into the overall DIS Exercise.

### Lessons Learned

Reducing and distributing materials. Several important lessons were learned about what to distribute and how to distribute the exercise materials. First is the need to reduce the amount of pre-exercise materials. The interviews and observations during the trial indicated that both the unit and site did not read or use most of the pre-exercise information. Developers, with military subject matter experts, should look at each portion of the pre-exercise materials and determine which information really is vital to performing the assigned role in the CCTT exercises. For example, the Senior O/C and the Exercise Controller receive many of the same materials, including the exercise contingency rules (e.g., guidelines for replacing disabled and destroyed manned modules). A review revealed some of that duplication was unnecessary. Furthermore, other media for delivering the program description and train-the-trainer information should be explored. Use of alternative training media for the train-the-trainer information is discussed further in the future considerations section.

Secondly, the method of creating the assembling distribution sets needs to be improved. This and other projects have shown that even the development team can not easily accomplish the task of creating the distribution set for the unit and support personnel. It is unreasonable to expect that a unit member who is not familiar with the TSP could possibly copy and prepare all the materials in an effective and timely manner. The process of pre-assembling pre-exercise materials and workbooks is time and labor-intensive. However, the burden needs to be placed on the developers in lieu of the unit.

As mentioned earlier, the Staff Group Trainer assembly program provides one way of creating distribution sets that are linked to shelf versions of TSPs. However, an even better way to link the shelf and distribution sets might be to place the TSPs into a database with the information in smaller, more flexible chunks. For example, the description of the pre-exercise stage of training would only have to be written once to support all the roles. Then a description of a particular role during the pre-exercise stage could be written separately. Links could be created that pull both files into the pre-exercise materials for a role. If the pre-exercise

description needs to be updated, it is only updated once and the update automatically goes into every file that is linked to it. The shelf version of the TSP could be created from these linked files as well.

Modification of materials. There were several important lessons learned in how the task force materials could be modified that could be useful in the development of other TSPs. First is the consolidation of execution tools.

Execution tools for O/Cs in STRUCCTT-2 included event guides, observation forms (task force only), and AAR worksheets. In an effort to streamline the materials needed during execution, the team began work on consolidating these execution tools. The AAR worksheets for the task force were eliminated for all but the Senior O/C because they were redundant with the observation forms and had not been used in the original STRUCCTT trial (Campbell et al., in preparation). Additional ideas on how to combine execution tools are discussed in the "Future Considerations" section.

The next issue regards the need to specify roles in terms of the CCTT. A suggestion received during one of the final project review meetings appeared at first to be rather insignificant. It was to include the distinction of "in the CCTT" in the titles of the portions of the task force TSP that provide train-the-trainer guidance. For example, one of the chapters was titled "Observer/Controller Roles and Responsibilities." Interviews with the O/C Team revealed that they felt quite capable of fulfilling O/C roles without additional guidance; therefore, they were not inclined to read the materials. The materials, though, do not focus on how to be an O/C in general but on how to be an O/C *in the CCTT*. This is an important distinction. This titling change was made to the task force materials and should be made in the titling of all train-the-trainer materials for the CCTT in the future.

Another small but important change from the original STRUCCTT materials was that the training audience was not clearly defined. The chapter titled "training participant role and responsibilities" was changed to "unit leaders role and responsibilities" to clarify that the chapter was written for the unit commander and his operations officer and not the unit in general. It reduced any confusion regarding who should review that chapter and clarified whose responsibility it was to make sure that the listed responsibilities were taken care of. The unit leaders can then involve the remaining unit personnel at their discretion. This change should also be made to the team and platoon materials.

The task force observation forms contain O/C coaching points to help point out to the O/C ways to evaluate whether a staff section needed to sustain or improve the listed tasks. The interviews with O/Cs indicated that they felt that the coaching points would be fine for someone new to the role of O/C, but were unnecessary for an experienced O/C. The coaching points were not revised for this project. However, in future efforts, development of coaching points for O/C should balance the need to help the inexperienced O/C evaluate a staff section against the need that experienced O/Cs have not to feel like they are being told what they already know. The Staff Group Trainer Program checklists provide examples of specific coaching questions for O/Cs

(Koger et al., 1996) which should be reviewed for their applicability in the less structured training environment of the CCTT.

Another lesson learned regarding material modification concerns the exercise preview. The original intent of the exercise preview (the time just prior to start of exercise [STARTEX]) was to provide for the Exercise Controller to discuss the training focus, review the ARTEP MTP tasks associated with the exercise, provide a detailed tactical situation review, and handle administrative concerns. During the trial, it was evident through observation and interviews with the unit leadership that the training focus and task review are more a part of pre-exercise planning. With this out of the way, the exercise preview becomes an opportunity for the unit commander to cover any last minute operational or tactical concerns and minor administrative issues prior to mounting the simulators and beginning the exercise. The Senior O/C and Exercise Controller no longer present the exercise preview. The unit commander does.

Finally, units need some flexibility built into training exercises. A major design issue during the project was to determine how much flexibility to allow a unit in a "structured" exercise. Army tactical doctrine expects and allows the unit commander great flexibility in accomplishing assigned missions. This flexibility can clash with the realities of a combat simulation like the CCTT which require either the unit to accept the default task organization and combat vehicle loading or to undertake a considerable effort to input the unit task organization and combat vehicle loading into databases. To reduce this source of friction, the STRUCCTT-2 Team provided an opportunity for the unit commander to make some adjustments in his task organization and tactical disposition. This flexibility increased the resource cost to the site CLS personnel in executing the DIS mission since they were required to modify exercise files in the middle of training. Exercise developers need to plan for this additional cost to site personnel if they allow units the flexibility to modify existing exercises. If units are not permitted to modify existing exercises, then they will have to fully absorb the costs of developing a new exercise which would include designing the exercise and the control and evaluation system, the supporting tactical materials, and creating the exercise electronic files.

### Cavalry Troop and Scout Platoon Exercises

#### Initial Decisions

The SOW required the development of a minimum of ten fundamental and mission-based exercises for heavy cavalry troop and subordinate scout platoon operations. The cavalry troop missions stated for consideration included reconnaissance and security missions, as well as offensive, defensive, and retrograde operations in an economy-of-force role. The exercises target the leadership of the cavalry troop and scout platoon. Also, the exercises were required to integrate air and ground assets within cavalry operations to the extent possible within the CCTT capabilities.

Based on the framework provided, a selection of potential missions and related table options were developed for the COR and senior user representatives to review. In order to provide those options, two key questions were addressed:

1. What were the capabilities of CCTT to train a heavy cavalry troop?
2. What would be the general squadron scenario the troop would operate in?

Identifying CCTT capabilities to train cavalry troops. The heavy cavalry troop organization in the CCTT system (Figure 8 ) was compared to the organization as outlined in FM 17-97 (DA, 1995). The comparison found the CCTT was lacking in the support provided to the troop task organization outlined in FM 17-97. First, the CCTT did not include the maintenance section or mortar section, and second, the troop commander was provided an M2A2 as a command vehicle in the CCTT instead of an M1A1 as dictated by the FM. Finally, the CCTT provided an M577A1 for the troop tactical operations center (TOC), but there was no means to control the vehicle on the database.

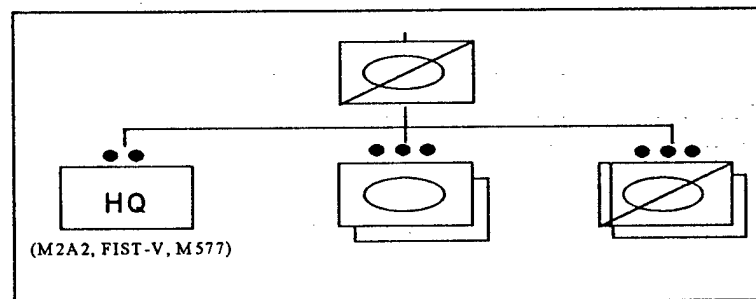


Figure 8. Heavy cavalry troop organization in the CCTT.

To accommodate training of the heavy cavalry troop organization, workarounds were developed to address the differences between the troop organizations. The CCTT workarounds included:

1. To provide a two-gun mortar section, another mortar platoon was added with one section and gun deleted.
2. To replicate the troop TOC, the Combat Trains Command Post (CTCP) workstation was used since it has an M577A1 that can be maneuvered by the workstation operator.
3. To provide the commander with an M1A1, a tank company was added to the exercise file and was reduced to a platoon with one tank.

Determining the squadron scenario. To determine in what general squadron scenario the troop would operate, an extensive review of literature was performed to identify and understand cavalry troop (and scout platoon) missions. Cavalry troop and scout platoon exercises that were developed for another project were reviewed in addition to these references: (a) FM 17-95 (DA,

1996); (b) FM 17-97 (DA, 1995); (c) FM 17-98 (DA, 1994b); (d) ARTEP 17-487-30-MTP (DA, 1991), and (e) ARTEP 17-57-10 (DA, 1994a).

Based on the review, the team selected two squadron scenarios. One scenario focused on security operations, with the squadron mission being to conduct a movement to contact as a heavy division's advance guard. The second scenario was a combination of security and economy-of-force operations, with the squadron mission to conduct a defense in sector as the guard for a heavy division conducting an area defense. The team chose these scenarios because they allow the inclusion of numerous tasks unique to cavalry operations.

### Designate Training Objectives

The general scenario and mission decisions above provided the reference to identify tasks and task steps. Since the cavalry troop and scout platoon exercises were primarily designed from the ground up, the task analysis model shown in Figure 2 in the methodology section was closely followed.

The ARTEP MTP tasks for the cavalry troop and scout platoon were filtered to determine the suitability for inclusion in the exercises. Those candidate tasks (i.e., observable and executable in the CCTT system) were further refined into a selected task list by determining their suitability within the general scenarios. Refer to Appendix C to examine the cavalry troop and scout platoon candidate tasks.

### Design Scenarios and Exercise Outlines

In this phase, based upon the missions and selected tasks, events were created and sequentially linked together into exercise scenarios for the cavalry troop and scout platoon. Each scenario supported the execution of the identified missions. The segments were then partitioned into tables. To this point, the effort was focused on producing general scenarios, missions, and table options from which the senior user representatives made the selections. A more detailed discussion of the design scenario and exercise outline process follows.

Sequencing events. After the events were designed to provide the cues (e.g., scripted O/C messages) necessary to prompt task execution, the next step was to sequence the events within a tactical context of an exercise scenario for both echelons. A difference from the STRUCCTT Project was the STRUCCTT-2 cavalry team development of a worksheet to assist in outlining each event. The worksheet was designed to be as detailed as possible so that information from the worksheet could also be used during the development phase. The information in the worksheet includes system requirements, initial task organization, environmental conditions, expected Combat Instruction Sets (CIS) for the BLUFOR and OPFOR SAF, and radio frequencies. Table 19 shows a sample worksheet.

Exercise partitioning. After a "walk through" of the scenarios to ensure operational and terrain appropriateness, the exercise partitioning options detailed in the methodology section were considered. The decision to combine the discrete (single table) and mission set designs came after

receiving input from senior user representatives expressing the need to provide greater flexibility to the unit conducting training.

Table outlines and fundamental tables. Table outlines were developed which clarify the table focus, tactical situation, and system requirements for each event in the two scenarios. In addition to the scenarios, fundamental exercises were designed to allow a unit to practice tasks in a limited tactical context before executing tasks under more difficult conditions. Three different fundamental tables were designed; two focused on reconnaissance tasks for both the troop and scout platoon, and one would allow a scout platoon and tank platoon to train together as the scout platoon performed reconnaissance tasks. Table 20 shows the details of the two scenarios considered with likely table segments.

Table 19

A Sample Cavalry Exercise Development Worksheet

Training unit		BLUFOR		OPFOR	
Element	Action	Element	Action	Element	Reaction
1 <sup>st</sup> Plt (Sct)	Zone Recon thru CPs 28, 26, 24. Actions on contact. Active AD measures.	Air Cav	Provide Sitreps.	Air	Su-17s fly RT RED AIR.
2 <sup>nd</sup> Plt	Follow and support thru CPs 28, 26. Actions on contact. Active AD measures.	FABTOC	N/A	Ground	Div recon to ALVORD Mtn (BTR with DIMs).  Plt from recon moves southwest out of sector.
3 <sup>rd</sup> Plt (Sct)	Zone Recon thru CPs 29, 27. Actions on contact. Active AD measures.	CES	N/A	Indirect fires	N/A
4 <sup>th</sup> Plt	Follow and support thru CP 16, 29, 27. Actions on contact. Active AD measures.			Obstacles	N/A
Cdr	Moves with 2d Plt.				
FIST	Moves with cdr.				
Mortars (FDC)	Tactical Movement to CP 29. Active AD measures.				
TOC (FSE)	Tactical Movement thru CPs 17, 11, 29. Active AD measures.				
Trains (UMCP)	Tactical Movement thru CPs 13, 11. Active AD measures.				

Table 20

## Cavalry Exercise MTC and DIS Scenarios Considered and Sample Table Titles for Each

MTC	
<u>Troop</u>	<u>Scout Platoon</u>
TCM1 - Zone Reconnaissance	PSM1 - Zone Reconnaissance
TCM2 - Contact with Division Recon	PSM2 - Contact with Division Recon
TCM3 - Actions on Contact	PSM3 - Actions on Contact
TCM4 - Hasty Attack (CRP)	PSM4 - Contact with CRP
TCM5 - Hasty Attack (FSE)	PSM5 - Contact with FSE
TCM6 - Establish Screen	
DIS	
<u>Troop</u>	<u>Scout Platoon</u>
TCD1 - Establish Screen	PSD1 - Establish Screen
TCD2 - Counter-recon Battle	PSD2 - Counter-recon Battle
TCD3 - Defend in Sector - PL ABRAMS	PSD3 - Screen Operations - PL CHAFFEE to PL ALABAMA
TCD4 - Defend in Sector - PL SHERIDAN	PSD4 - Screen Operations - PL ABRAMS to PL SHERIDAN
TCD5 - Rearward Passage of Lines	PSD5 - Rearward Passage of Lines

Selecting tables for development. Mission statements for each echelon, a draft commander's intent, and a draft concept of the operation with graphics were created for the scenarios in addition to the table outlines and task list. These were presented to the COR and senior user representatives to use in determining which mission and tables would be fully developed for the STRUCCTT-2 Project.

Using input from the trial unit's mission essential task list (METL), the movement to contact scenario was selected and modified to include some of the tasks that would occur in the defend in sector. The unit first conducts a movement to contact and after gaining contact with the advance guard main body, transitions to a delay. Table 21 shows the MTC troop tables that were proposed and those that were selected.

Table 21

MTC Troop Tables That Were Proposed and Selected

<u>Proposed</u>	<u>Selected</u>
TCM1 - Zone Reconnaissance	TCM1 - Zone Reconnaissance
TCM2 - Contact with Division Recon	TCM2 - Contact with OPFOR Bde Recon
TCM3 - Actions on Contact	TCM3 - Contact with CRPs and FSE
TCM4 - Hasty Attack (CRP)	TCM4 - Establish Screen
TCM5 - Hasty Attack (FSE)	TCM5 - Delay Against AGMB
TCM6 - Establish Screen	

The division recon table was not selected because it would consist of one or two OPFOR vehicles that would be encountered 48-72 hours prior to the troop beginning movement. The engagements against the combat reconnaissance patrol (CRP) and the forward security element (FSE) were combined into one table. This was due to the time and distance factors (realistically it would not be separate encounters) affecting how far apart the two elements were before being encountered by the troop. The final modification was to have the troop delay against the advance guard main body after establishing a screen. This modification allowed a majority of the tasks from the defense in sector scenario to be addressed in the context of the movement to contact scenario.

After analyzing the requested modifications, the movement to contact scenario was partitioned into five tables. The tables for the cavalry troop and its subordinate scout platoon are nearly identical and focus on tasks at each respective echelon. Descriptions of each partition are provided below:

1. TCM1/PSM1 - The first table of the modified movement to contact scenario has the troop conducting a zone reconnaissance. As the troop conducts the zone reconnaissance, it encounters destroyed BLUFOR and OPFOR vehicles, abandoned positions, and craters. In order to stress the unit's ability to conduct the reconnaissance while maintaining internal communications, the troop sector is wider than the doctrinal standard of 10 kilometers.
2. TCM2/PSM2 - The second table has the troop continuing the movement to contact to the east. As the troop moves through its zone, it encounters elements from an OPFOR brigade reconnaissance company and other reconnaissance elements. The OPFOR is arrayed throughout the depth of the troop's sector to provide contact across the entire troop front. The table covers a distance of about 20 kilometers to provide the unit with a feel for the doctrinal distance OPFOR brigade-level reconnaissance elements would operate from the brigade main body.



3. TCM3/PSM3 - In the third table the troop continues to execute its movement to contact. As the troop moves in zone, it encounters two OPFOR CRP and a forward security element from the advance guard main body (AGMB). The CRPs are task organized similarly but have distinct differences in order to force the unit to report reconnaissance information versus interpret it. Additionally, the table requires the unit to focus on its reconnaissance objective, which is the FSE. If the unit becomes decisively engaged in fighting the CRPs, the FSE will close before the troop can deploy to engage it.

4. TCM4/PSM4 - The fourth table begins with the troop having completed a hasty attack against the OPFOR FSE. Close air support has been used to disrupt the AGMB's movement toward the troop. The troop receives a warning order directing them to establish a screen. While the troop is establishing the screen, unit leaders receive a fragmentary order to conduct a delay against the AGMB. An OPFOR forward patrol moving into the troop's sector requires the unit to maintain continuous surveillance of its assigned sector.

5. TCM5/PSM5 - The last table of the modified movement to contact scenario centers around the troop delaying against the AGMB. The unit begins in positions on its screen line. Based on pressure from the AGMB the troop displaces to subsequent delay positions in order to facilitate the destruction of the AGMB by follow-on forces. The distance covered by the table provides the unit with enough depth to conduct the delay.

In addition to the ten mission tables for the movement to contact scenario, the two fundamental tables selected were the troop and scout platoon reconnaissance fundamentals. The team made this selection because the tables supported the tasks that would be conducted in the mission tables for the movement to contact. Figure 9 shows the tables selected for development.

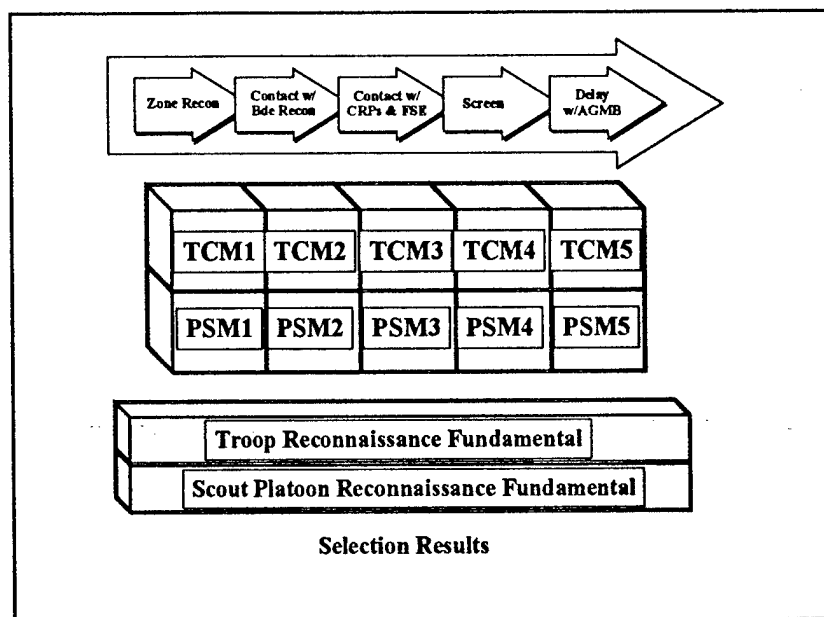


Figure 9. Summary of the cavalry tables selected for development.

## Develop Exercises and TSPs

With the basic TSP framework established, the primary focus for the cavalry troop and scout platoon exercises involved creating the tactical materials and building the exercise files. There are two revisions to the STRUCCTT TSP design noted at the end of this section, table modification and reformatting the event guide.

Creating the tactical materials. The tactical materials needed to support the tables consisted of the operation orders with applicable annexes and supporting overlays. As mentioned earlier, the tactical materials were not developed during the previous phase since the detailed information they provide was not required to make the mission and table selections.

The team used the mission statement, commander's intent, and initial concept of the operation from the movement to contact scenario to begin preparation of the tactical materials. The materials were expanded based on the changes to the movement to contact scenario by the senior user representatives. The development of the OPORDS ran concurrent to the development of the other pieces of the TSP, requiring regular coordination to ensure all materials were properly aligned. Due to a compressed timeline, outside military experts provided assistance with the development of the OPORDS.

The final tactical materials created for the cavalry tables consisted of (a) Squadron Movement to Contact Operation Order; (b) Squadron Annex B - Intelligence; (c) Squadron Annex C - Operations Overlay with Appendix 1 (Operations Execution Matrix) and 2 (Operations Graphics Location); (d) Squadron Fire Support Annex with Appendix 1 (Fire Support Execution Matrix) and Appendix 2 (Target List), and (e) Troop Movement to Contact Operations Order.

Towards the end of the development process, the team added squadron and troop FRAGOs that would set the stage for the delay against the AGMB in tables TCM5 and PSM5. The FRAGOs addressed changes from the original operation orders and provided the training unit with a scheme of maneuver for the delay. The team provided instructions in the tables on when to issue the FRAGO to the unit leader during execution of the table. The decision to add the FRAGOs and instructions is a good example of the concurrent nature of this development process.

Developing and building exercise files. The team initially built the cavalry troop exercise files at the Fort Knox CCTT Site. Due to differences in software versions between the Fort Knox and Fort Hood sites, the file built for the scout platoon exercises was suspended until access to Fort Hood was obtained. The team then revised the troop exercise files and built and internally tested the scout platoon exercise files to ensure they functioned as intended.

One key difference between STRUCCTT and STRUCCTT-2 was the exercise file structure. Due to table partitioning (discrete vs. mission set), the STRUCCTT team and platoon exercise files only included the units and CIS's that were required for that particular exercise segment. As stated in the methodology section, this was due in part because the STRUCCTT

Project was directed to only produce selected tables within mission sets. To provide the O/C or unit commander the capability to continue training through a mission set, each STRUCCTT-2 exercise file had to include all units and CIS's needed to run the mission through completion. Refer to Figure 6 for portrayal of the exercise file design.

To provide flexibility, the STRUCCTT-2 Team established five exercise files that allowed the unit to start with, or run individually, any table of the mission set. With this design, an AAR could be conducted at the discretion of the O/C or unit commander, then the unit could continue through the mission or close the file and restart with any table.

Integrating Air Cavalry. A unique aspect of the cavalry exercises was the directive to integrate air cavalry assets into the exercises. The SOW specifically required "the contractor shall address the integration of air and ground assets within cavalry operations to the extent possible within CCTT capabilities." General guidance for conducting air cavalry troop (ACT) operations in support of the ground troop was provided in Part 1 of the TSP, Introduction to Cavalry Training.

The CCTT system does not provide a dedicated workstation or module for rotary wing aircraft (RWA); however, the BLUFOR SAF workstations include an air cavalry troop with an organization of two platoons of four OH-58Ds (RWA) each. For the cavalry exercises, the team used two OH-58Ds to replicate the air cavalry troop covering the front of the squadron and aircraft rotating time on station (refuel and rearm).

The air cavalry troop elements were controlled by a pilot in command positioned at a SAF workstation dedicated for the air cavalry elements. Each exercise file contained preexisting routes (which allow the workstation operator to roleplay if the air cavalry personnel are not available), or the pilot (with the workstation operator) could construct other routes as appropriate. The co-pilot was positioned at an AAR workstation tethered to the OH-58Ds, using the out the window view to assist the pilot in observing and reporting battlefield information to the ground troops.

Changes to the STRUCCTT TSP Design. Revisions to the STRUCCTT format centered on two key areas: (a) providing instructions to the unit on how to modify a table and (b) reformatting the event guide. First, the STRUCCTT Team and platoon table materials did not address table modification. The STRUCCTT-2 TSP included a section addressing this issue in Part 1, Introduction to Cavalry Tables, and provided guidance on how to modify the tables for different environmental conditions such as day, night, and fog. Also, general guidance was provided for modifying engagement parameters, task organization, and changes to address unit-specific standing operating procedures (SOP). In addition to the guidance on table modification in Part 1, individual tables provided the O/C with specific recommendations for modifying the table focus and altering the scheme of maneuver. Table 22 shows an example from table TCM3 - Contact with CRPs and FSE, on specific recommendations for modifying the table.

Table 22

## Sample Instructions on Modifying a Cavalry Table

IF you want...	THEN...
To arm the OH-58Ds from the ACT	Provide the OPFOR with ADA systems so that they can engage the OH-58Ds.
To change the OPFOR actions	a) The FSE can maneuver to north around Red Pass and move into the troop zone from the northeast. This will change the troop's actions against the FSE. b) Once the CRPs are in contact, the FSE can increase its rate of march to Red Pass and conduct a hasty defense from the pass area. This will change the troop's actions against the FSE. c) The OPFOR can increase its use of artillery during its engagement against the troop. This will make command and control more difficult for the troop.

Second, two revisions to the structure of the cavalry troop event guide were intended to benefit the O/C. The first revision moved the tasks and task steps into a column next to the unit action, in an effort to simplify the connection between the unit's observable actions and specific tasks or task steps. Also, the team added a column that would allow the O/C to mark task performance as Sustain or Improve. The intent of this modification was to provide a quick reference for the O/C when conducting the training unit AAR.

Formative Evaluation

The following participant demographic information (Table 23) applies to both the cavalry troop and orientation exercises since they both were part of the same trial. There were 44 unit members responding to the survey with the following distribution: 11 vehicle commanders and above, 29 crew members, and 4 unit support workstation operators.

Table 23

## Cavalry Troop and Orientation Exercise Participant Demographics

Respondents	Average years in service	Average years in grade	Trained at NTC (past 2 years)	Trained in simulation (past 2 years)
44	5.92	1.4	50%	24%

As noted in the task force section, the reliability of the survey results is diminished due to the small sample sizes and the exercises being executed only once. They do, however, support the observations and comments received from the training unit during interviews and hotwashes. Also, each survey administered at the end of each training day for both the scout platoon and cavalry troop included questions regarding the three tables scheduled for that day.

After the initial "train-up" period, the next two training days of the schedule included the six scout platoon tables. Due to unfamiliarity with training in the CCTT and some system problems, the unit completed only two tables the first day and completed the remaining four tables the following day. Because of that problem, no data was collected on PSM2. Since they were instructed to skip the questions for PSM2, a majority of the participants (77%) missed the last question on the survey. The last question dealt with the relationship between tasks trained in the simulation environment and task execution in similar live training situations.

Materials. The scout platoon and cavalry troop surveys asked only general questions regarding materials received and used. This change (from the task force formative evaluation process) was intended to rely more heavily on the development team observations, hotwashes, and interviews with the unit members. The reason for the change was because the development team would not have direct control of material distribution, which was a problem noted in the task force evaluation. Also, with the surveys administered at the end of each day, responses regarding earlier exercises would be less reliable. The interviews after each exercise found the unit members only received the materials related to the execution of the scout platoon and cavalry troop exercises (e.g., OPORDS, event guides, workstation execution guidelines, exercise modification guidance). While the content of the materials recommended the unit should reproduce train-the-trainer information found in Volumes 1 and 2, it was not accomplished. In the surveys, 81% of the scout platoon and cavalry troop members indicated they received the materials necessary to complete the tables, and 85% felt the materials provided enough information to execute the tasks. Refer to Appendix E to review the survey results for the tables conducted each day.

Exercise Activities. Another change from the task force to the cavalry troop formative evaluation process included the elimination of questions regarding pre-exercise activities. The evaluation designer felt sufficient general data existed regarding those issues gathered during earlier trials for the task force DIS exercise and the STRUCCTT Project company/team and platoon tables. The hotwashes or interviews could adequately cover any particular questions regarding the activities.

Exercise Execution. As opposed to the survey being a one time event for the task force unit members, cavalry troop exercise participants received surveys daily. In light of that fact, reducing the complexity of the survey was the focus in the development of the cavalry troop surveys. The result was a reduction (from the task force evaluation instruments) in the number of exercise execution questions, providing only six questions for each table. Table 24 below provides a summary for all the scout platoon tables.

Table 24

## Scout Platoon Tables Survey Summary

Question	Yes %	No %	Unsure %	N/A %	NR %
Considering the table intent, was the focus placed on the appropriate tasks?	84	1	6	2	4
Could the tasks be performed?	84	4	3	2	7
Did all the tasks occur during the exercise?	61	14	12	2	8
Did you receive sufficient cues during the exercise to perform the tasks?	77	1	11	3	8
Did the exercise improve coordination between ground and air troop elements?	63	6	17	6	8
Was the difficulty of the table about right?	71	2	14	3	8

Note. N/A = not applicable; NR = no response

The development team anticipated the responses would be relatively few with regard to ground and air troop element coordination (for both platoon and troop level tables) since those activities impact a somewhat limited audience. However, two items of particular note for the scout platoon involved the questions regarding task occurrence during the exercise and if the table difficulty was about right. First, the respondents indicated (46%) not all tasks occurred during the fundamental table (PSF1); an additional 19% responding they were unsure if the tasks occurred. Second, the zone reconnaissance table (PSM1) and PSF1 both received relatively low responses with regard to table difficulty (60% range). These survey results supported the observations of the exercises by the evaluation team. The following revisions resulted: (a) the start points were changed in PSF1 and the tactical situation revised to reflect a no later than for completion of the route reconnaissance and (b) PSM1 OPORD now directs the scout platoon to use the "hasty zone reconnaissance" technique.

The cavalry troop level training produced similar survey results as the platoon level training regarding the questions focused on the specific tables, shown in Table 25. There was a drop in positive responses for the cavalry troop for the question of whether all the tasks occurred during the exercise. This was due to the same reason as the scout platoon tables; the unit did not have time to complete TCF1 and TCM2. The revisions were: (a) to provide no later than completion parameters for the fundamental table and (b) to specify the "hasty zone reconnaissance" technique in the OPORD. Other revisions of interest to the scout platoon and cavalry troop exercises as a result of the development team's observations and unit hotwashes are found in Table 26.

Table 25

## Cavalry Troop Tables Survey Summary

Question	Yes %	No %	Unsure %	N/A %	NR %
Considering the table intent, was the focus placed on the appropriate tasks?	90	1	7	1	2
Could the tasks be performed?	90	2	6	1	2
Did all the tasks occur during the exercise?	75	5	15	1	3
Did you receive sufficient cues during the exercise to perform the tasks?	84	2	10	1	2
Did the exercise improve coordination between ground and air troop elements?	62	5	23	9	2
Was the difficulty of the table about right?	82	4	11	1	4

Note. N/A = not applicable; NR = no response

Lessons Learned

Integration of Air and Ground Units. A desired outcome of the cavalry troop exercises was to gain an understanding of the effects of air and ground unit integration. The pilot was positioned with a BLUFOR SAF workstation to fly routes, with the co-pilot using the out-the-window view at the AAR workstation to assist the pilot in observing and reporting battlefield information. Though the functions performed were not at all similar to live training, interviews with the pilots showed the practice of coordinating activities with ground units to be a valuable experience. The reason for this is the two units rarely have an opportunity to conduct coordinated activities in any type of realistic setting.

Increasing OPFOR Pressure in Cavalry Troop Exercises. The unit trials indicated that the BMP equipped AGMB was not creating enough pressure on the unit during an exercise primarily because the BMPs would not fire their anti-tank guided missile (ATGM) weapons. Since that response was not expected, the OPFOR was changed to address that problem by: (a) providing a stable firing platform for the BMPs using a series of "Traveling" and "Occupy Temporary Defensive Position" CISs assigned to the mechanized infantry companies so that they would halt every two to three kilometers, (b) increasing the engagement range of the AGMB units from 3,000 m to 5,000 m, and (c) assigning CIS's for the anti-tank platoon that would allow them to overwatch the main body as they maneuvered.

Table 26

Revisions to Scout Platoon and Cavalry Troop Exercises

Revision	Rationale
<u>Scout Platoon Exercise:</u>	
Clarified disengagement criteria to include distance and specific number of enemy vehicles.	Previous disengagement criteria only addressed distance and caused some confusion.
Provided the mortar section with split section capability.	Split section capability provides the FDC workstation operator or commander with greater flexibility in employing the mortars.
Rewrote the Air Cavalry Exercise Guidelines to provide the pilots greater flexibility and control over the OH-58Ds.	Based on input gained during the trial, pilots wanted greater flexibility in controlling the OH-58Ds. Also allows the pilot to more effectively maneuver the aircraft in accordance with (IAW) established Tactics, Techniques and Procedures (TTP).
Provided for arming the OH-58Ds with the proviso that the OPFOR must have ADA systems.	Allows the air cavalry elements to influence the fight while keeping them honest because they have to contend with OPFOR ADA.
<u>Cavalry Troop Exercise:</u>	
Clarified disengagement criteria to include distance and specific number of enemy vehicles.	Previous disengagement criteria only addressed distance and caused some confusion.
Provided the mortar section with split section capability.	Split section capability provides the FDC workstation operator or commander with greater flexibility in employing the mortars.
Rewrote the Air Cavalry Exercise Guidelines to provide the pilots greater flexibility and control over the OH-58Ds.	Based on input gained during the trial, pilots wanted greater flexibility in controlling the OH-58Ds. Also allows the pilot to more effectively maneuver the aircraft IAW established TTP.
Provided for arming the OH-58Ds with the proviso that the OPFOR must have ADA systems.	Allows the air cavalry elements to influence the fight while keeping them honest because they have to contend with OPFOR ADA.
Reassigned the CIS's for the AGMB so that it could more effectively use ATGMs to put pressure on the troop.	During the trial the troop was able to destroy the AGMB without having to displace. OPFOR ATGMs had little if no effect on the fight.



Improving exercise execution. For platoon and company/team level exercises, the STRUCCTT Project Team used a table partitioning design which divided missions into separate tables, each with its own AAR. The cavalry troop and scout platoon exercises implemented a different method of table partitioning with complete mission sets which allowed the unit to continue through the table segments without stopping. The team provided various re-starting points (actually new exercise files) in the event the O/C or unit commander determined the unit should repeat a segment before continuing through the series. The team's observations during the trial of the exercises were favorable regarding the use of the mission set partitioning. The partitioning method reduced the development time, time for initialization and unit preparation, and, most importantly, it provided more control over the exercise execution and flow for the unit commander and O/C.

### Orientation Exercises

The project SOW (as modified) established that five orientation exercises were to be developed to support team, platoon, and task force level CCTT training, including exercises for: (a) an M1A1 tank company; (b) an M1A2 tank company; (c) an M2 infantry fighting vehicle (IFV) company with two platoons having the capability to dismount; (d) the unit support workstations with crews manning a high mobility multipurpose wheeled vehicle (HMMWV), an M113A3 Armored Personnel Carrier, and an M981 Fire Support Team Vehicle (FIST-V), and (e) dismounted infantry platoons. The intent for these exercises was to bridge CCTT simulator and workstation specific training and the unit exercises. The exercises for the combat vehicles would be based on similar training that had been developed for other simulation systems. The unit support workstation orientation exercise was to replace the workstation practical exercise that had been developed during the initial STRUCCTT Project. The dismounted infantry platoon exercise was a new requirement. The PM CATT representative identified specific CCTT characteristics that should be observed during the orientation exercises, including BLUFOR and OPFOR vehicles and aircraft in normal and combat damaged conditions. The orientation exercises were to expose unit personnel to day and night conditions in the CCTT.

### Initial Decisions

The intended training audience for the combat vehicle exercises was the crews. The dismounted infantry training audience included (a) infantry platoon leaders, (b) infantry squad leaders, (c) forward observers, and (d) dismounted scouts. In the unit support workstation operators exercise, there were two categories of training participants: those operating unit support workstations and those operating manned modules in support of the unit support workstations. Table 27 shows the categories and the elements in each:

Table 27

## Workstation Orientation Exercise Training Audience

Category	Elements
Unit Support Workstation Operators	<ul style="list-style-type: none"> <li>• Fire Support <ul style="list-style-type: none"> <li>– FSE (Fire Support Element),</li> <li>– FABTOC (FA Battalion Tactical Ops Center),</li> <li>– FDC (Fire Direction Center), and</li> <li>– TACP (Tactical Air Control Party)</li> </ul> </li> <li>• Combat Service Support <ul style="list-style-type: none"> <li>– CTCP (Combat Trains Command Post) and</li> <li>– UMCP (Unit Maintenance Collection Point)</li> </ul> </li> <li>• Engineer <ul style="list-style-type: none"> <li>• CES (Combat Engineering Support)</li> </ul> </li> </ul>
Manned module participants	<ul style="list-style-type: none"> <li>• Fire Support Team (M981 FIST-V),</li> <li>• Motor Sergeant (SGT) (M113A3), and</li> <li>• First Sergeant (1SG) (HMMWV).</li> </ul>

The STRUCCTT-2 Team initially designed each orientation exercise to last two to three hours. They were to be non-tactical, allowing the participants to focus on familiarizing themselves with the capabilities of the CCTT simulation. This was accomplished through visual identification of vehicles and terrain features and operation of the manned modules or workstations. The O/Cs could benefit from participating in the orientation exercises by learning to supervise training in the CCTT. The exercises would be under the guidance of the CLS AAR workstation operator who had the overall responsibility for the successful outcome of the orientation exercises.

To accommodate the requirement to incorporate both day and night operations in the exercises, the team considered three options: (a) running a daylight only exercise, terminating that exercise, then starting a night exercise; (b) starting the exercise during the night and continuing through sunrise; and (c) starting the exercise in late afternoon and continuing through sunset. The CCTT replicates diurnal and nocturnal effects which can not be set forward or backward once the exercise is started. With a minimum time of 30 minutes required to terminate and restart an exercise, the STRUCCTT-2 Team determined that the first option would not be suitable because exercise duration was to be three hours or less. The STRUCCTT Team also declined the option of starting the exercise during the night since crews would have had no practice in moving in the CCTT under day conditions before progressing to night. The team selected the third option, starting the exercise during the late afternoon and allowing the light conditions to transition into night as the exercise progressed. The initial workstation orientation exercise design did not incorporate night operations as time of day does not directly affect the operation of the workstation.

### Designate Training Objectives

For the three combat vehicle orientation exercises, the STRUCCTT-2 Team assumed that the crews would be familiar with the operation of their vehicle and that they would have received preliminary training from CLS personnel on the differences between the manned module and the actual vehicle. Preliminary discussions with representatives of PM CATT and CLS personnel indicated the training should provide the crews with practice in negotiating natural terrain obstacles, such as wadis, and with exposure to the full range of vehicle and aircraft systems modeled in the CCTT. The team decided that creating conditions to allow crews to observe direct and indirect fire effects and to rearm and refuel was also important. Based on observations during the CCTT Limited Users Test (LUT) at Fort Hood in Spring, 1997, the team identified a need for crews to practice entering and fighting from prepared vehicle positions.

The combat vehicle orientation exercises originally focused only on CCTT familiarization. However, after review by the PM CATT representative, the team determined that the IFV exercise should also include instruction on the operation of the Dismounted Infantry Module (DIM). A review of the Education of CCTT through Computer Assisted Training Technology (EDUCCATT) computer-based instruction, which was intended to provide the DIM operating instructions, showed that the operators needed more practice manipulating the workstation controls since the operation of the workstation did not replicate the tasks that the operator was expected to perform in combat. To assist the operator in developing workstation proficiency, the operator needed to be able to reference his required activities with his workstation operator's guide. The team added this requirement to the training objectives for the IFV orientation exercise.

The STRUCCTT-2 Team also determined through task analysis that similar training objectives were suitable for the dismounted infantry exercise, including movement across varying terrain and through prepared obstacles and the identification of both enemy and friendly combat vehicles. An important consideration for the squad leaders was to practice mounting and dismounting vehicles.

The workstation orientation exercise's training objectives were derived from an analysis of the workstation operator guides which had been developed by the PM CATT. This analysis also included an examination of the EDUCCATT computer-based instruction for the workstation operators that was available at the Fort Hood CCTT site. The analysis concluded that EDUCATT provided sufficient training for the operators on the use of the command pull menus and operation of the plan view display controls. The team concentrated on developing training objectives which would replicate the critical functions the operator would be expected to perform while supporting unit exercises.

In defining the tasks which support the training objectives, the use of the term "actions" instead of "tasks" freed the team from having to tie an action to a specific task in a soldier's or technical manual. It also supported the intent of the orientation exercises which was to familiarize units with features of the CCTT.

## Design Scenarios and Exercise Outlines

Mounted Crew Orientation Version. After analyzing the activities that tank and Bradley crews would be performing, the STRUCCTT-2 Team determined the general scenario for the three exercises could be combined into one "mounted" version with minor modifications made for including dismounted infantry squad participation in the Bradley course. Since the STRUCCTT-2 Team intended the orientation exercises to provide CCTT familiarization rather than mission training, they prepared no tactical scenario for the crews. Otherwise, the crews would focus on fire and maneuver against any identified vehicle rather than on identification alone. Another concern was to allow the crews to participate in the course independently from other crews in their unit. To facilitate this, the team selected a circular exercise course based on the road network around the National Training Center's Tiefert Mountain with four separate, yet similar, segments. Each segment was 18 to 25 km in length and contained up to four starting positions. Therefore, the exercise is capable of supporting up to 16 manned modules, which can support four platoons training simultaneously. If not all manned modules are in use, the design also allows for a different starting point for crews who had been disoriented or require a restart due to hardware or software failure.

Each segment contained eight vehicle display areas, an engineer obstacle belt, and four prepared vehicle fighting positions with rearm and refuel points behind the location. The vehicle display areas provide an example of every friendly and OPFOR vehicle contained in the CCTT database. The fighting positions provided the opportunity to engage OPFOR combat vehicles, combat service support, and troops.

To complete the exercise, the crews maneuver along a designated route to a battle position (BP) with a single prepared fighting position. Along the route the crews would identify OPFOR and BLUFOR weapon systems on display. OPFOR and BLUFOR aircraft and helicopters fly along the route to provide the crews an opportunity to observe them. Also, the crews perform the following activities: (a) drive over a breached anti-tank ditch on an armored vehicle launched bridge (AVLB), (b) negotiate a breached minefield, and (c) maneuver around a wire obstacle. Except for the occupation of the battle position which was always last, the sequence of events along the route would differ depending on the route assigned. Prior to entering the prepared fighting positions, the crews would observe BLUFOR dismounted infantry fire teams and rearm/refuel using the CCTT trainer-unique display (TUD) capabilities. The TUD, which is located on exterior of the manned module, allows the crew to resupply their own ammunition and fuel, to tow a vehicle, and to conduct crew level maintenance.

After occupying the BP, the crews would participate in a direct fire engagement and observe the impact of various types of indirect fire around their position. The crews then would prepare for night operations which would include another direct fire engagement and observation of indirect fire against their position.

Internal testing of the mounted orientation exercise at Fort Hood showed that the design of the mounted crew orientation exercises created an entity count which pushed the CCTT system beyond its capabilities to function reliably. An entity is a single distinct computer-generated object (e.g., a vehicle, aircraft, soldier, round of ammunition, or obstacle) that is present in the

exercise file and appears on the CCTT virtual database. Once the entity count went above 900 on the system, the system began to experience workstation crashes. Also, exercise management of 16 different routes proved to be too cumbersome for the CLS personnel due to the number of air, target, vehicle route overlays, and crew execution guidelines spread out over a large area of operation. Therefore, major design revisions were necessary to the mounted crew orientation exercise.

The redesigned mounted crew orientation exercise reduced the number of vehicle display areas from four to one and placed the remaining vehicle display area in a centralized location; this reduced the entity count by almost 60 percent, to 350 or 360. The team also reduced the number of tankers and ammunition trucks. Six starting points (with two crews at each point) were established allowing up to 12 vehicles to be trained simultaneously without creating choke points around the obstacle belts and the consolidated refuel/rearm points. The prepared fighting positions were located adjacent to each other which would ease the coordination requirements for the O/C and AAR workstation operator. With all of the crews engaging the OPFOR from one location, the various elements which they were supposed to observe (e.g., BLUFOR/OPFOR aircraft and helicopters, indirect fire effects) needed to be initiated only one time for everyone. Thus, OPFOR engagements were easier to coordinate and control.

The IFV exercise included a requirement for dismounted infantry squads to participate in the training. As a prerequisite for participating in the IFV mounted crew exercise, DIM operators must have completed the EDUCCATT computer-based instruction for the DIM workstation, which is available at the site. In designing an exercise scenario that would include dismounted infantry, the STRUCCTT-2 Team took into account the difficulty that novice DIM operators had in mounting their computer generated forces into a manned module. Observed by team members during earlier trials (STRUCCTT and STRUCCTT-2), this difficulty often resulted in long delays in an exercise until the training deficiency could be overcome. As a result, the team designed the IFV exercise to permit the IFV manned module to begin its movement on the course while the dismounted infantry squad leaders learned to manipulate the DIM. As the IFV moved off, the dismounted infantry began to move to a helicopter pickup zone. Once at the zone, the squads mounted a computer generated UH-60 Blackhawk helicopter which airlifted the squads to the head of the vehicle display area that had been created for the mounted crew exercise. After moving for 2.5 kilometers through the display while observing the vehicles, the squad moved to a link-up point where their IFV met them after it had negotiated the obstacle belt and moved through the vehicle display area. The dismounted squads would mount the IFV and move with their vehicle to their designated battle position where they would dismount and occupy prepared infantry fighting positions. They would then participate in engaging the OPFOR and observing aircraft and helicopters and the effects of indirect fire. To assist the DIM operator in completing his required actions, the team developed a Route Execution Guide that references his actions with the copy of the workstation operator's guide as provided to him at the workstation. Table 28 below shows an example of a Route Execution Guide with actions correlated to the operator's guide.

Table 28

## DIM Hands-On Instruction Added to the Route Execution Guides

Actions	Activity	Operator's guide reference
1. Set Single-Channel Ground and Airborne Radio System (SINCGARS) radio frequencies.	Set radio channel one frequency to 31.100. Make communications contact with the O/C.	Pg. 3-6 (para. 3.3.3).
2. Set map scale.	Select the <u>Zoom/Pan</u> pull down menu from the PVD screen. Select Zoom to Specific Scale: <u>1:12,500</u> .	Pg. 3-9 (para. 3.4.1.6) and, pg. 3-10 (fig. 3-6).
3. Set Military Grid Reference System (MGRS) tracking.	Select the <u>Attributes</u> pull down menu from the plan view display (PVD) screen. Select Display MGRS coordinates: <u>6 Digits</u> . Select <u>Enable Location Tracking</u> to enable and display mouse cursor grid coordinates tracking.	Pg. 3-5 (figure 3-2).
4. Orient your self to the terrain and unit.	You are located at AA 1 (NK328269). Select the <u>LOOK</u> position on the joystick mode switch. Rotate the joystick to the right or left to orient yourself to the terrain and view your unit disposition.	Pg. 2-2 (table 2-3 and figure 2-1).
5. Designate Route from AA 1 to the SP.	From the Command Window, select <u>ROUTE</u> and <u>DESIGNATE</u> to create a route from the AA to the SP at NK 334275.	Pg. 2-1 (tables 2-1 & 2-2) - pg. 2-2 (table 2-3), pg. 2-3 and, pg. 3-39.

Dismounted Infantry Version. The dismounted infantry orientation exercise was designed to run independently of the IFV mounted crew exercise. As a prerequisite for participating in the exercise, DIM operators must have completed the EDUCCATT computer-based instruction for the DIM workstation. The team designed the dismounted infantry exercise to be executed on the National Training Center terrain in the vicinity of Drinkwater Lake. It is a linear 10 kilometer course running west to east. The exercise, which does not require the participation of IFV manned modules, begins with the infantry platoons located in assembly areas. The platoons begin to move by squads to the start of their assigned route. Once movement begins, they are instructed to vary their speed and formation. The routes take them to either side of various displays of BLUFOR and OPFOR vehicles. At the end of the display, the squads encounter an abati, a breached minefield, and a wire obstacle which they are required to breach. After completing the breach, the squads move to a rearm/refuel point. After being resupplied they move to a helicopter pickup zone where they are lifted by UH-60 helicopters to a landing zone near an ambush site which they are required to prepare. The squads then ambush, under day and night conditions, an OPFOR squad accompanied by an armored personnel carrier. The

STRUCCTT-2 Team developed a Route Execution Guide similar to that for the IFV mounted crew course that cross-references the DIM operator's actions to the copy of the workstation operator's guide provided to him at the workstation.

Workstation Orientation Version. The team located the workstation orientation exercise in the National Training Center Central Corridor with units in individual assembly areas or observation posts. The exercise was designed with maximum flexibility to allow unit support workstation operators and manned module crews to train independently or in conjunction with other workstations depending on the needs of the training unit.

The fire support workstations (FSE, FDC, FABTOC, TACP) and the M981 FIST-V crew shared a common array of OPFOR, graphic control measures, and radio frequencies that allowed them to interact and develop as a team in preparation to support their unit in the CCTT. If one or more fire support workstations were not required to support training, the other workstations could still participate in the exercise. The combat service support workstations (CTCP and UMCP) and the HMMWV and M113A3 manned modules shared a common logistics scenario which allowed the operators and crews to operate in conjunction with one another or independently. The combat engineering workstation (CES) had an independent scenario to operate in but could interact with the UMCP and CTCP for logistic support if those workstations were participating in the exercise. To assist the workstation operators and crews in completing their activities during the course, the team provided them with workstation execution guidelines similar to the ones they receive during unit training.

#### Develop Exercises and TSPs

In determining the structure of the orientation exercises TSP, the development team had to decide whether the TSP would be a stand-alone product or be integrated into the team and platoon and task force TSPs. Because the orientation exercises were the same for supporting team, platoon, or task force training, the STRUCCTT-2 Team decided to make the orientation exercises TSP standalone, to title it the *Orientation Exercise Guide*, and to reference it in the team and platoon and task force TSPs. A related issue was whether the *Orientation Exercise Guide* would duplicate the train-the-trainer information in Volume II of the team and platoon TSP and in parts 2-4 of the task force TSP. The team decided not to duplicate the general train-the-trainer information in the *Orientation Exercise Guide* but to have it contain only those instructions and tools specific to executing the orientation exercises. Before reading the *Orientation Exercise Guide*, the support personnel would review the necessary portions of Volume II of the team and platoon TSP or parts 3-4 of the task force TSP to get the general train-the-trainer information.

Finally, the team debated the focal audience for the orientation exercise TSP. Was the primary training audience for the orientation exercise TSP the unit O/C or the CLS site personnel? The team decided that the AAR workstation operator would have overall responsibility to ensure that the unit members are trained in the operation of their manned module and are familiar with the many features of the CCTT. First, it was likely that the training unit would not arrive with the necessary number of O/Cs to monitor the orientation exercises (particularly in team and platoon training where there is only one O/C). Secondly, the O/Cs might not be very familiar with the

CCTT; they would certainly be less knowledgeable than the site-provided AAR workstation operators. Placing the AAR workstation operator in charge was a key difference from the team and platoon and task force TSPs where the unit O/C has overall responsibility for the training outcome. In the final analysis, the team considered the primary training audience for the orientation guide TSP to be the the AAR workstation operator, and revised the original O/C-targeted version.

For consistency, it was important the orientation course TSP be structured similar to the existing team and platoon and task force TSPs. Thus, the model for the orientation exercises TSP was the exercise guides in *Volume VII: CCTT Structured Training Program: Heavy Cavalry Troop and Scout Platoon Exercise* of the STRUCCTT team and platoon package which was under development at the same time. The orientation exercise TSP begins with a brief overview that describes all of the orientation exercises. There are three chapters, providing the instructions and tools needed to prepare for and execute one of the three versions of orientation exercises (i.e., mounted, workstation, and DIM). Each chapter contains three sections: pre-execution, execution, and post-execution. Because the feedback provided by the O/C during the orientation exercises was to be more informal than the standard AAR, the team dubbed it a "hotwash" and added the word "hotwash" to the name for Section 3.

The sections following the post-execution hotwash section contain any execution guides (e.g., strip maps and instructions) needed by the training participants to conduct the exercise and a list of the actions that were being trained in each exercise. Table 29 delineates the different sections.

Table 29

Table of Contents for the Mounted Orientation Exercise Chapter

Section	Topic
1	Pre-Execution
2	Execution
3	Post-Execution Hotwash
4	Execution Guides
5	Individual and Crew Actions for the Mounted Crew Orientation Exercise

The STRUCCTT-2 Team decided to put the supporting documentation (e.g., plan sheets, executable overlays, and overlay documentation) into appendixes. Appendixes A through C were each dedicated to providing the supporting documentation for the three versions of the orientation exercises. Appendixes D, E, and F provided camera-ready versions of the exercise action charts, event description charts, and vehicle recognition guides for reproduction onto acetate or an enlarged wall chart to be used during the exercise previews or hotwash.

The STRUCCTT-2 Team intended to maintain consistency in the formatting and structure of the three versions of orientation exercise materials. The reason was to expose the training



participants to type of materials they would use while executing the structured exercises developed during the STRUCCTT project. This was especially relevant for the personnel designated to perform the O/C function and for the unit support workstation operators. As a result, the format and content of the event guides and the workstation execution guides for the Workstation Orientation Exercise are similar to those used in structured exercises developed previously by the team. The major difference is the operators were given, as exercise guidance, sequential activities they needed to perform during the course. In a regular structured exercise developed by the team, operators are given general exercise guidance which can be modified at the direction of the O/C. The event guides for the Mounted Crew and Dismounted Infantry Orientation Exercises used a different format.

The team changed the format of the execution guides for the mounted and dismounted orientation exercises several times until both contained strip maps, vehicle recognition charts, and route instructions. As the user observed the listed vehicles, he was to place a check mark in the box provided on the vehicle recognition chart. He was to call the O/C only if he could not identify the listed vehicle type.

An issue discussed by the team during the development of the orientation exercises TSP was whether or not an answer sheet was needed that identified the locations of all the vehicles or CCTT features. Appendix F, the Orientation Exercises Vehicle Recognition Guide, was provided as an answer sheet to help soldiers identify the vehicles in each exercise. However, another pilot or trial is needed to address the effectiveness of this tool.

### Formative Evaluation

The trial focused on the mounted exercise version of the orientation exercises. Though there were three versions developed; the DIM exercise was not run, and there was a limited test of the workstation operator exercise (only four FDC operators were available). The workstation operator exercise trains not only FDC roles, but all the workstation functions (i.e., CES, UMCP, FABTOC). In light of that, a comprehensive discussion regarding the workstation operator exercise is not possible.

The formative evaluation design for the orientation exercises planned hotwashes, unit interviews, and development team observations to be the primary sources of information regarding exercise flow and activity accomplishment. The survey instrument focused on the exercise execution materials provided to the unit. As a reference to the following discussions of the survey results, there were a total of forty respondents to the mounted exercise survey. The cavalry troop section of this report contains the specific demographic information related to the orientation exercises.

The survey administered to the crews after conducting the exercise focused on the effectiveness of the materials, the route execution guide and route sketch. Of those unit members indicating they used the materials (43%), 88% responded that they could follow the instructions as they were written in the route execution guide and the route sketch was accurate. The majority (82%) of the respondents indicated the route execution guide needed no revision. Survey results are provided in Table 30.

Table 30

Orientation Course (Mounted) Survey Summary

Question	Yes %	No %	NR %
Were you the crew member using the Route Execution Guide?	38	58	5
Were you able to follow the instructions as they were written in the Route Execution Guide?	38	5	58
Was the route sketch accurate (checkpoints, start and release points, and group locations)?	38	5	58
Were you able to identify every vehicle in each group as written in the Route Execution Guide?	13	30	58

Note. NR = no response

The initial design parameters for the orientation exercise required all vehicles in the CCTT data base be displayed for recognition by the unit members. Over 70% of the respondents indicated they were unable to recognize every vehicle or model. Of those respondents, 50% stated they were unable to recognize some vehicles or models because they were not already familiar with them. An additional 40% felt they could not recognize the simulation depiction of the vehicle or model. The remaining 10% of those respondents indicated the recognition problem stemmed from viewing them under night conditions. It should be noted the exercise design did not include vehicle identification under night conditions. This occurred because several crews did not arrive at the identification area until close to the end of the exercise. Finally, over 92% of the respondents felt prepared to conduct the platoon and troop exercises in the CCTT and believed everyone preparing to train in the CCTT should participate in the orientation exercise.

Exercise Execution (Mounted Version). Most of the crews did not complete the mounted course. The reasons the course was not completed include: (a) crews becoming lost while navigating to the vehicle identification area, (b) a platoon rallied together and attempted to incorporate tactical movement practice, and (c) lack of unit preparation (no maps). Several revisions made to the mounted exercise are provided in Table 31.

Table 31

## Revisions to the Orientation Exercises (Mounted)

Revision	Rationale
Shortened distance to vehicle identification area	Reduces terrain navigation time
Earlier exercise start time	Provides additional time to reach fighting positions
Added DIM operational instructions (switchology) to applicable exercise materials	Provides a job aid and reinforcement to DIM training
Checkpoints added to overlay	Aids exercise management

Exercise Execution (Workstation Version). Due to the limited number of participants in the unit support workstation operator exercise (four FDC personnel), few conclusions were drawn from the trial. The operators interviewed upon completion of the exercise provided comments applicable only for the FDC function. Overall, the operators felt the simulation experience was not a realistic training opportunity for their Military Occupational Specialty (MOS). Also, the FDC group felt additional workstation operation training and practice was necessary for them to respond more realistically in support of the unit. Based upon interviews with the operators, revisions to the unit support workstation operator exercise are listed in Table 32.

Table 32

## Revisions to the Orientation Exercise (Unit Support Workstation Operator)

Revision	Rationale
Instruct FDC to move to a firing position	Initialization position is in a staggered column
Change task organization	Allows FDC to fire simultaneous missions

Lessons Learned

Units who have not trained in the CCTT within the last 180 days must allot time to conduct initial or refresher CCTT system training. This training takes approximately eight hours to complete and includes a site orientation, manned module familiarization, combat-based instruction on operating the unit support workstations and the DIM, and an orientation exercise to familiarize the participants with the CCTT features in preparation for unit training exercises. To shorten the system training time, the individual workstation on-site system training could shift to become off-site training. In the future, EDUCCATT should be accessible via Internet or

personal computer to train unit support, DIM, and HMMWV workstations. Also, the portion of the orientation exercises which provides familiarization to the crews on identifying the features of the CCTT system (e.g., OPFOR and BLUFOR vehicle identification, indirect fire effects) could be demonstrated by a CD-ROM-based program to be used prior to the unit's arrival.

The limited trial conducted by the STRUCCTT-2 Team with the Workstation Orientation exercise and interviews with the operators of the DIM indicated that operators may need in-depth training to become proficient with their workstations. To maximize the utility of the orientation exercises, the CLS site personnel need to insure that the exercises are completely integrated with site-provided familiarization training and the EDUCCATT computer-based instruction. The team designed the orientation exercises to provide a transition between familiarization training and unit exercises. Allowing crews and workstation operators to participate in these exercises without providing basic familiarization may lead to negative training results in the CCTT.

### General Lessons Learned

The documentation of the lessons learned was an important part of the STRUCCTT-2 design and development process. This section includes the general lessons learned that apply across all products and were not included in the product-specific categories. The goal of documenting these lessons learned is to provide guidance and insight into how design and development of structured simulation-based training packages could be improved. These lessons learned are beneficial for any person connected with the development, delivery, support, or participation in structured simulation-based training with even greater applicability to developing CCTT structured training packages.

The specific topics discussed in this lesson learned section are grouped into the following categories: (a) materials, (b) exercise design and development, (c) project planning, (d) formative evaluation, and (e) general issues.

#### Materials

Reduce the amount of materials provided. Reducing the amount of materials distributed continues to be a concern to the unit and CCTT support personnel. A key issue is distinguishing between nice to know, should know, and must know information. Within that issue, a lesson learned is that developers, with military subject matter experts, should carefully review materials to determine what information is truly vital in performing the assigned roles in the CCTT. There is a need to determine where in the TSP information should reside; as reference or as an execution tool. An example is from the task force section; there is a shelf version of the TSP material and a user-focused version called a distribution set. The development team's effort focused on the reduction of material included in the shelf version. The effort needs to shift now where the impact to the user will be the greatest, on the distribution set. Also, a need exists to review each piece of information for inclusion in either the reference or distribution set on its own merit. Developers tend to include all potentially useful information with the premise that if it is not needed; it can always be removed. Actually, the longer it remains, the more the information is perceived as necessary and becomes increasingly difficult to remove. It is likely these efforts will result in the

elimination and combination of forms (e.g., combining the event guide with the AAR worksheet) and other exercise support materials.

Provide read-me-first documents. Interviews with site personnel during the trials, combined with observation, indicated that for a variety of reasons (e.g., site staffing and subsequent time constraints) the site is unable to provide the expected level of support to ensure the training unit receives all materials. The site would like to simply send the unit materials on CD-ROM with no additional support or guidance. The STRUCCTT-2 Team made great progress in providing electronically pre-assembled pre-exercise materials for most roles and electronically pre-assembled workbooks for all roles for the task force product and placing them on CD-ROM to help relieve the burden on the site.

However, one of the biggest challenges was ensuring the Exercise Controller or his designated representative knew what was already pre-assembled on the CD-ROM and in paper copies at the site. That way, the unit could decide whether they wanted to simply reproduce the already-assembled paper versions or whether they wanted to take the time to print out the materials from the CD-ROM. The CD-ROM contained a read-me-first document to tell the user where to go on the CD-ROM to access the pre-assembled materials. The paper version of the TSP contained distribution instructions in the overview explaining both the CD-ROM and hard copy versions of the TSP. However, in future efforts, it might be useful to pull those instructions out of the TSP overview and into a separate "Read me first" guide that would be a few pages long.

#### Exercise Design and Development

Improving exercise execution. The STRUCCTT Project used a table partitioning design for platoon and company/team level exercises which divided missions into separate tables, each with its own AAR. This was due in part to the directive to create only selected tables within mission sets. However, this project created complete mission sets instead of individual tables, providing the option to continue through a complete mission. Internal review combined with the unit trials provided a favorable response to the use of mission set partitioning because it reduced the development time, time for initialization and unit preparation, and, most importantly, it provided more control over the exercise execution and flow for the unit commander and O/C. The development team provided various re-starting points (actually new exercise files) in the event the O/C or unit commander determined that the unit should repeat a segment before continuing through the series.

Provide time limits. During the development team's observation of the exercises during the trial, it was noted exercises were often not completed in the time frame expected by the developers. Generally this occurred because the units would become lost or conduct activities too slowly. The tendency by the O/C or unit commander was to allow the unit to wander around, "figuring things out," until so much time had passed that the exercise could not be completed. Hence, the unit does not receive training in all the tasks as originally planned. As an example, a unit did not complete the orientation exercise and their performance later was negatively impacted since they were unfamiliar with some of the CCTT features.

By providing additional “no later than time” specifications in the exercise materials, the unit commander and the O/C will have more information at hand to improve exercise management. Also, coaching guidelines are provided in the O/C materials to be used by the O/Cs to encourage a pro-active training approach. Adding additional time specifications and reinforcing O/C coaching responsibilities should help units finish exercises on time.

Revised Exercise Preview. As mentioned in the task force section, the original intent of the exercise preview (the time just prior to STARTEX) was to provide an opportunity for the unit to review the upcoming training exercise. These details covered a review of the ARTEP tasks associated with the exercise, tactical situation, and administrative concerns. During the trials, the unit commander or O/C used the preview as a line of departure briefing. They felt the earlier planning stages provided ample opportunity to discuss much of the designed preview information, including the tasks which should already be covered by the time a unit enters the simulator. In light of this, the development team revised the preview instructions and scripts in the task force materials to make the preview a line of departure briefing.

Provide for unit flexibility within exercises. As mentioned in the task force section, determining the level of flexibility to allow a unit in “structured” training was a major design issue. The flexibility Army tactical doctrine allows the unit commander can clash with the realities of a combat simulation like the CCTT. As stated earlier, the STRUCCTT-2 Team provided an opportunity for the unit commander to make some adjustments in his task organization and tactical disposition. Though flexibility increased the resource cost to the site CLS personnel in executing the DIS mission since they were required to modify exercise files in the middle of training, it allowed the unit to acquire “ownership” of the exercise.

The cavalry troop exercises also provided guidance to the unit for the modification of exercises. In addition to task organization flexibility, the guidelines allowed modifications such as OPFOR scheme of maneuver, OPFOR engagement parameters, and obstacles for the engineers to breach. Since modifications take time to update, it is critical the unit provides desired modifications to the site in a timely manner.

### Project Planning

Create complete mission sets. To greatly reduce the development time in future efforts, exercises should be developed as complete mission groupings. This lesson stems from the amount of design work involved for the STRUCCTT Project. The STRUCCTT Project’s goal was to create a sampling of tables within three missions for the platoon and company/team levels. Even though only a subset of tables was fully developed, the design and partial development of the full set of tables in support of those missions was required. STRUCCTT-2 spent far less design and development time by creating a complete set of cavalry tables for the MTC mission only and a task force exercise for the DIS.

Allow adequate development time and opportunities for feedback. The development and production time needed to get a TSP ready to trial is often underestimated. As an example, the

train-the-trainer materials (Parts 1-4) to support the DIS task force training were not ready in time for the trial due to significant revisions to the original MTC materials. The priority was producing the new Part 6 to support the DIS exercise, rather than the revision of the already-available train-the-trainer materials. Unfortunately, this meant the old train-the-trainer materials were used during the trial rather than the new materials; the input from the O/C team was tempered by the fact that many of their complaints (e.g., excessive length, redundancy) were addressed in the revised materials. The revised Parts 1-4 of the task force package were never reviewed outside the development team and the COR.

Also, scheduling considerations should include the time to conduct a user panel review and pilot test prior to the unit trials. The user panel review, as found with the cavalry troop exercise development, provides valuable input regarding initial design decisions and exercise sequencing. The pilot test provides the window of opportunity to identify problems with the exercises and materials, implement the revisions, and validate those revisions during the trial.

Plan to update prior project materials. The STRUCCTT-2 Project created training exercises to augment the exercises developed in the initial STRUCCTT Project. Though the plan was not to retrofit changes to materials and exercises developed in the STRUCCTT Project, the need to make some revisions became evident. As mentioned in the task force section, when the previous MTC and current DIS exercises were to be conducted during the same training period, changes had to be made to the original MTC materials to avoid confusion for the training unit.

Additionally, changes to the event guides for the cavalry troop resulted in an effort to retrofit the STRUCCTT Project team and platoon tables. To take advantage of new doctrine or improvement to exercise materials, previously developed TSPs should be systematically reviewed and updated as needed. Funding should also be provided to maintain distribution sets of TSP materials for use by units.

### Formative Evaluation

Questionnaire administration. Both the STRUCCTT and STRUCCTT-2 Projects conducted two or more tables each day of the unit trials. The participants during the STRUCCTT Project trial received questionnaire surveys after each table in addition to other surveys administered on behalf of the LUT. The STRUCCTT Project's evaluation team noted that the unit participants appeared overwhelmed with surveys, which increased the tendency to provide indifferent answers. Since the cavalry troop trial scheduled three tables per day, the STRUCCTT-2 Project administered one questionnaire survey at the end of each training day to ensure the same problem was not repeated. By administering surveys once each day, observation of the participants and review of the surveys (e.g., same answer for every question, no answers) revealed no obvious participant indifference.

However, there was a trade-off with the loss of specific table-related information on one of the tables not completed as scheduled. Additionally, there is some loss of reliability for specific table-related information since the participants may not remember an exercise completed in the morning. The development team used observation combined with individual participant

canvassing after each exercise segment to compensate for the information loss. As an additional note regarding the survey process, the unit selected for the trial should be briefed on the evaluation plan and related expectations during the first briefing. This allows the unit to fully understand and accept their role during the assessment of the exercises and encourages their support in providing honest appraisals.

Formative evaluation process. There were changes made to the formative evaluation process for the cavalry troop and orientation exercises as a result of the STRUCCTT Project and task force DIS exercise trials. The primary change centers on the approach: using the development team's observations, hotwashes, and training participant interviews as the principal method of information gathering. The survey instrument became a supplement to that effort. Combining discussions with the STRUCCTT Project Team and the experience gained from the task force DIS exercise trial, the most reliable information was obtained through informal personal contact methods of information gathering. The reasons for this include having the ability to ask additional questions to clarify points, a better understand the individual's perspective when answering questions, and a reduction of time writing complete thoughts on paper.

To address the change to the evaluation approach, the survey instrument was modified by reducing the survey size and focus. A reduced number of questions ensured the completion of the survey would take approximately 10 minutes. Secondly, instead of trying to cover all aspects of the training for the day, the questions primarily focused on the general effectiveness of the training exercises. The intention was to use the survey to support information gathered from direct personal contact, not to produce stand-alone conclusive findings.

### Miscellaneous

Production concurrent with system development. The STRUCCTT-2 Project, like the STRUCCTT Project, found difficulties with producing exercises for a system that is currently under development. Primarily, the problems center around the negative impact new software drops had on exercise file CISs. Exercises already saved in the system were rebuilt and tested to ensure they would run properly. The negative impact on exercise development could be reduced with system enhancements which allow exercises currently on file to be accessible after new software upgrades.

It is important to note, however, that the focus of the concern stated above is from an exercise development perspective only. From a much larger perspective, the exercise development effort proved to be valuable in shaping the overall system. Touted by the COR and TRADOC System Manager (TSM), the benefits provided to system development, testing, and verification overshadowed the relatively small negative affect on exercise development.



## General Issues

Acceptance of simulation training. A concern observed throughout the unit trials was whether units take full advantage of the training opportunity in the CCTT. This concern is likely applicable throughout the simulation training environment. It involves two particular thoughts: (a) comparing the amount of preparation a unit conducts for training in the CCTT and a similar live situation, and, (b) ensuring unit actions during simulation are consistent with expected actions in similar live training situations. Both issues stem from a fear that simulation training is not taken as seriously as live training situations; therefore, there is a loss in potential training value to the unit.

The first issue arose from development team observations during both trials (task force and cavalry troop) that it appeared the units placed little attention on preparation. This was evident during one of the trials when the training unit arrived at the site without combat vehicle crewman (CVC) helmets or maps. Another example would be using the time at the site to draw overlays and to conduct pre-exercise planning. Though some of this can be attributed to the trials not being included in a unit's regular training strategy (red cycle), it appears there could be a lack of support or direction from military leadership. Training in the CCTT or any other simulation environment should receive a similar level of importance as live training situations.

The second issue stems from how units perceive the training opportunity once they are at the site. The beauty of simulation is that when something goes wrong (e.g., units are lost, vehicles are destroyed in driving accidents, or vehicles destroyed by direct or indirect fire [even fratricide]); there is really little harm done. There is no real loss of life and vehicles can be reconstituted. Unfortunately, that simulation benefit can become a detractor to training. The units begin to do things they would normally not do; such as driving into hazards or rough terrain, shooting with little regard to the positioning of friendly forces, or having two vehicles take on large enemy forces without insuring support. Again, unit leadership needs to ensure that simulation-based training is approached as seriously as live field training.

## Future Considerations

The following topics cover future developmental considerations that are based on the lessons learned during this project combined with the STRUCCTT-2 Project team member's knowledge and experience from work on other projects.

### Increasing the Use of Alternative Training Media

The training support personnel, including the O/C Team and CLS personnel, tend not to read the train-the-trainer materials received in advance of the exercise. The packages are often not read for a myriad of reasons including: (a) packages are too thick with nice-to-know mixed with need-to-know, (b) read-ahead materials and tools are combined and difficult to read easily, and (c) support personnel are convinced that they already know their roles in the CCTT training

environment. When developing future train-the-trainer packages for the CCTT, research is needed on the possibility of using CBI to train the roles and responsibilities in the CCTT rather than traditional paper-based materials. While it would be expensive to develop multimedia CBI for each role, it is likely that the CBI format would be more acceptable to the users. Putting the roles and responsibilities instructions into CBI also supports Wilkinson's concept that the train-the-trainer instruction in a comprehensive training support package should be CBI (Wilkinson, in preparation). Alternatives to CBI to deliver the information include: (a) the use of a multimedia presentation on CD or the Internet or (b) the use of a video presentation. An ongoing ARI initiative is designing such an approach, called the Commanders' Integrated Training Tool for the CCTT.

### Combine and Computerize Scenario Tools

Like the other project observation forms that preceded it, the STRUCCTT-2 task force level observation forms are paper-based and separate from the events list. Both the SGT (Koger et al., in preparation) and STRUCCTT Programs discovered that users wanted the events list and observation form combined. When the STRUCCTT-2 Team looked into combining the events list and observation form, this was considered to be too difficult to implement on paper. However, the use of computers in developing observation forms to support digital exercises (with their pull-down windows) greatly increases the possibility of nesting the observation forms (e.g., via pull-down menus) inside the events list.

The SGT Program piloted the use of a data collection form on a Newton hand-held personal data assistant (PDA) for its observers (Quensel, Sanders, & Brewer, 1997). Furthermore, the PDA uses infrared technology that downloads the observation form data from the observers into the PC used for data capture and analysis, making the data available for AARs and take home packages in 15 minutes or less (K. Fergus, personal communication, February 5, 1998). This coincides with the STRUCCTT requirement for 15 minutes to prepare for company/team and staff section AARs.

### O/C Training

The STRUCCTT-2 team observed over both STRUCCTT projects a need to provide additional training to the O/C. Not only should the O/C be knowledgeable with regard to how the unit should perform, but he must understand his role in the CCTT environment so that he provides additional guidance to positively impact the unit's training experience. The additional guidance mentioned includes making full use of the training opportunity presented with the CCTT and taking a proactive approach to training during the exercise. On several occasions the development team witnessed units who became lost for nearly the length of the exercise before the O/C took action to help them. There were other times when crews were allowed to take on enemy in situations that never would have occurred in live training exercises merely because they could be reconstituted if they were destroyed. A final example is a fratricide, during the task force DIS exercise, only was mentioned as an afterthought during the AAR. The O/C must have the same standards for simulation training performance as for live training exercises and must reinforce those standards in the feedback given to the participating unit. Allowing a unit to stray

from the planned training objectives only encourages the perception that training in the simulation environment is merely a game and not a viable training opportunity for the unit.

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## Appendix A

### Acronyms

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<b>1SG</b>	First Sergeant
<b>AAR</b>	After Action Review
<b>ACT</b>	Armored Cavalry Trainer
<b>AD</b>	Air Defense
<b>ADA</b>	Air Defense Artillery
<b>AFRU</b>	Armored Forces Research Unit
<b>AGMB</b>	Advanced Guard Main Body
<b>ARI</b>	U.S. Army Research Institute for the Behavioral and Social Sciences
<b>ARTEP</b>	Army Training and Evaluation Plan
<b>ATGM</b>	Anti-Tank Guided Missile
<b>AVLB</b>	Armored Vehicle Launched Bridge
<b>BLUFOR</b>	Blue Forces
<b>BMP</b>	(Bronevaya Maschina Piekhota) Russian Infantry Fighting Vehicle
<b>BP</b>	Battle Position
<b>BTR</b>	(Bronetransportr) Russian 8-Wheeled APC
<b>CATT</b>	Combined Arms Tactical Trainer
<b>CBI</b>	Computer-Based Instruction
<b>CCTT</b>	Close Combat Tactical Trainer
<b>CD-ROM</b>	Compact Disc-Read Only Memory
<b>CES</b>	Combat Engineering Support Workstation
<b>CFS</b>	Command From Simulator
<b>CFX</b>	Command Field Exercise
<b>CIS</b>	Combat Instruction Set
<b>CLS</b>	Contractor Logistics Support
<b>COR</b>	Contracting Officers Representative
<b>CP</b>	Command Post
<b>CRP</b>	Combat Reconnaissance Patrol
<b>CS</b>	Combat Support

<b>CSS</b>	Combat Service Support
<b>CTCP</b>	Combat Trains Command Post
<b>CVC</b>	Combat Vehicle Crewman
<b>DA</b>	Department of the Army
<b>DATK</b>	Deliberate Attack
<b>DI</b>	Dismounted Infantry
<b>DIM</b>	Dismounted Infantry Module
<b>DIS</b>	Defend in Sector
<b>EDUCCATT</b>	Education of CCTT through Computer Assisted Training Technology
<b>FABTOC</b>	Field Artillery Battalion Tactical Operations Center Workstation
<b>FDC</b>	Fire Direction Center Workstation
<b>FEBA</b>	Forward Edge of Battle Area
<b>FIST</b>	Fire Integration Support Team
<b>FIST-V</b>	Fire Support Team Vehicle
<b>FM</b>	Field Manual
<b>FRAGO</b>	Fragmentary Order
<b>FSE</b>	Fire Support Element Workstation
<b>FWA</b>	Fixed Wing Aircraft
<b>FY</b>	Fiscal Year
<b>HEMMT</b>	Heavy Equipment Mobility Tactical Truck
<b>HHQ</b>	Higher Headquarters
<b>HMMWV</b>	High Mobility Multi-Purpose Wheeled Vehicle
<b>HUMRRO</b>	Human Resources Research Organization
<b>IAW</b>	In Accordance With
<b>ICW</b>	Interactive Courseware
<b>IFV</b>	Infantry Fighting Vehicle
<b>IOT&amp;E</b>	Initial Operational Testing and Evaluation
<b>IPB</b>	Intelligence Preparation of the Battlefield
<b>IPR</b>	In Progress Review
<b>IR</b>	Information Requirements
<b>IVIS</b>	Intervehicular Information System

<b>LOGPAC</b>	Logistics Package
<b>LUT</b>	Limited User Test
<b>MB</b>	Megabytes
<b>MC</b>	Maintenance Console
<b>MCC</b>	Master Control Console
<b>METL</b>	Mission Essential Task List
<b>MGRS</b>	Military Grid Reference System
<b>MIBN</b>	Mechanized Infantry Battalion
<b>MIBR</b>	Mechanized Infantry Brigade
<b>MICLIC</b>	Mine Clearing Line Charge
<b>MOS</b>	Military Occupational Specialty
<b>MTC</b>	Movement To Contact
<b>MTP</b>	Mission Training Plan
<b>NTC</b>	National Training Center
<b>OC</b>	Operations Center
<b>O/C</b>	Observer/Controller
<b>OPFOR</b>	Opposing Forces
<b>OPLAN</b>	Operations Plan
<b>OPORD</b>	Operations Order
<b>PDA</b>	Personal Data Assistant
<b>PIR</b>	Priority Intelligence Requirement
<b>PM</b>	Program Manager
<b>PM CATT</b>	Program Manager for the Close Combat Tactical Trainer
<b>PVD</b>	Plan View Display
<b>REDCON</b>	Readiness Condition
<b>RWA</b>	Rotary Wing Aircraft
<b>S1</b>	Personnel Officer
<b>S2</b>	Intelligence Officer
<b>S3</b>	Operations Officer



<b>S4</b>	Logistics Officer
<b>SAF</b>	Semi-Automated Forces
<b>SAIC</b>	Science Applications International Corporation
<b>SGT</b>	Sergeant
<b>SGT</b>	Staff Group Trainer
<b>SIMNET</b>	Simulation Networking
<b>SINGARS</b>	Single-Channel Ground and Airborne Radio System
<b>SIT TEMP</b>	Situation Template
<b>SOP</b>	Standing Operating Procedure
<b>SOW</b>	Statement of Work
<b>STARTEX</b>	Start of Exercise
<b>STRICOM</b>	Simulation Training and Instrumentation Command
<b>STRONGARM</b>	Strategies for Training and Assessing Armor Commanders' Performance With Devices and Simulations
<b>STRUCCTT</b>	Structured Training for Units in the Close Combat Tactical Trainer
<b>TACP</b>	Tactical Air Control Party Workstation
<b>TF</b>	Task Force
<b>TFAM</b>	Task Force Movement to Contact
<b>TLP</b>	Troop Leading Procedures
<b>TOC</b>	Tactical Operations Center
<b>TRADOC</b>	Training and Doctrine Command
<b>TSM</b>	TRADOC System Manager
<b>TSP</b>	Training Support Package
<b>TTP</b>	Tactics, Techniques and Procedures
<b>TUD</b>	Trainer Unique Displays
<b>UMCP</b>	Unit Maintenance Collection Point Workstation
<b>VT</b>	Variable Time
<b>VTP</b>	Virtual Training Program
<b>WPE</b>	Workstation Practical Exercise

## Appendix B

### Formative Evaluation Project Log

A sample of the document used to track the project team's design and development information. The information can be organized as needed by sorting based on any column.

<b>Project Data</b>				<b>Ref Type Ex.:</b> COR/TSM Meeting Thoughts	<b>Info Types:</b> 1 = Final Report 2 = Form. Eval. 3 = Both 4 = Misc	<b>Issue Type:</b> 1 = Task Force 2 = Cav 3 = Both 4 = Organizational	<b>5 = Systems (site)</b> 6 = Orientation 7 = Other
<b>Info</b>	<b>Issue</b>	<b>Date</b>	<b>Decision Need?</b>	<b>Decision Done?</b>	<b>Reference</b>	<b>Comments</b>	
1	2	9/18/97	N	N	Meeting	<u>Information Sample...</u> Important, Regarding Air Cavalry, the capability is there, but try to ensure not to detract from the ground troop. The SOW says to investigate and consider...the Cav team was trying hard to fit it into everything. It is not known the extent to which air cav can play during the exercise. More to come later.	
1	2	9/17/97	N	N	COR/TSM	<u>Information Sample...</u> They agreed to Cavalry team's workarounds. The team needs to be specific at Cavalry meeting and IPR as to what they are. I should refer to the Refer to Wessp8 document to get some information. Basically, these are system limitations which will not be "fixed" in the CCTT prior to delivery.	
3	2	9/18/97	Y	N	COR/TSM	Information	
1	2	9/4/97	Y	N	Thoughts	Information	
2	2	9/3/97	Y	Y	COR/TSM	Information	
4	2	8/27/97	Y	N	Meeting	Information	

## Appendix C

### Task Charts

This appendix provides task or action charts used for the design and development of the battalion task force DIS exercise, the cavalry troop and scout platoon tables, and the orientation exercises (mounted, workstation operator, and DIS).

Chart	Title	Page
1	Task Force MTC Exercise Tasks	C-2
2	Task Force DIS Exercise Tasks	C-3
3	Cavalry Troop, ARTEP 17-487-30-MTP Tasks Not Recommended	C-4
4	Cavalry Troop, ARTEP 17-57-10-MTP Tasks Not Recommended	C-4
5	Cavalry Troop, ARTEP 17-487-30-MTP Tasks Not Recommended	C-4
6	Cavalry Troop, ARTEP 17-57-10-MTP Tasks Not Recommended	C-5
7	Cavalry Troop Candidate Tasks	C-5
8	Scout Platoon Candidate Tasks	C-6
9	Orientation Exercises Mounted Crew Actions	C-7
10	Orientation Exercises Dismounted Infantry Actions	C-8
11	Orientation Exercises Workstation Operator Actions	C-9
12	Orientation Exercises Manned Module Workstation Exercise Actions	C-11

Chart 1 below lists the battalion task force MTC exercise tasks, the tasks noted with an asterisk (\*) do not apply to the battalion task force DIS exercise.

<b>Task</b>
7-1-3004 Move Tactically*
7-1-3006 Fight a Meeting Engagement*
7-1-3007 Assault*
7-1-3022 Reorganize
7-1-3023 Consolidate
7-1-3901 Command and Control the Battalion Task Force
7-1-3902 Perform S3 Operations
7-1-3902 Perform S3 Operations
7-1-3903 Command Group Operations
7-1-3904 Operate Main Command Post
7-1-3035 Move a Command Post
7-1-3905 Perform Intelligence Operations
7-1-3906 Perform S2 Operations
7-1-3908 Operate Fire Support Section
7-1-3909 Perform Mobility/Survivability Operations
7-1-3911 Perform Air Defense Operations
7-1-3912 Perform Combat Service Support Operations
7-1-3913 Operate Combat Trains CP

Chart 2 below lists the tasks selected for the battalion task force DIS exercise.

<b>Task</b>
7-1-3008 Attack/ Counterattack by Fire
7-1-3009 Defend
7-1-3012 Withdraw Under Enemy Pressure
7-1-3022 Reorganize
7-1-3023 Consolidate
7-1-3901 Command and Control the Battalion Task Force
7-1-3902 Perform S3 Operations
7-1-3903 Command Group Operations
7-1-3904 Operate Main Command Post
7-1-3035 Move a Command Post
7-1-3905 Perform Intelligence Operations
7-1-3906 Perform S2 Operations
7-1-3907 Employ Fire Support
7-1-3908 Operate Fire Support Section
7-1-3909 Perform Mobility/Survivability Operations
7-1-3911 Perform Air Defense Operations
7-1-3912 Perform Combat Service Support Operations
7-1-3913 Operate Combat Trains CP

The charts on this and the following two pages list the tasks reviewed and selected for the cavalry troop and scout platoon tables.

**Chart 3: ARTEP 17-487-30-MTP Tasks Not Recommended (System Supportability)**

<b>Task #</b>	<b>Task</b>
17-2-3110	Conduct Hasty Water Crossing Operations
17-2-5260	Prepare for Operations in an NBC Environment
17-2-3819	Prepare for a Nuclear Attack
17-2-3818	Cross a Radiologically Contaminated Area
17-2-4045	Conduct a Radiological Survey
17-2-3813	Prepare for a Friendly Nuclear Strike
17-2-5840	Perform Radiological Decontamination
17-2-3822	Prepare for a Chemical Attack
17-2-3823	Respond to a Chemical Agent Attack
17-2-3824	Cross a Chemically Contaminated Area
17-2-4040	Conduct a Chemical Survey
17-2-3805	Coordinate for Detailed Equipment Decontamination
17-2-3814	Perform Detailed Troop Decontamination
17-2-3816	Protect Supplies & Equipment from Contamination
17-2-3804	Respond to the Residual Effects of a Nuclear Attack
17-2-3825	Perform Hasty Decontamination (Vehicle Washdown)
17-2-3827	Perform Medical Treatment & Evacuation
17-2-7103	Care for NBC Contaminated Casualties

**Chart 4: ARTEP 17-57-10-MTP Tasks Not Recommended (System Supportability)**

<b>Task #</b>	<b>Task</b>
17-3-4040	Conduct an NBC Reconnaissance
03-3-C016	Conduct Operational Decontamination
17-3-8143	Cross an NBC Contaminated Area

**Chart 5: ARTEP 17-487-30-MTP Tasks Not Recommended (Observable/Executable)**

<b>Task #</b>	<b>Task</b>
17-2-3810	Perform Precombat Inspections
17-2-3812	Execute Sleep Plan
17-2-3811	Perform Combat Planning
17-2-3801	Process Enemy Personnel and Equipment
17-2-1080	Employ OPSEC
17-2-0012	Develop Direct Fire Plan
17-2-2460	Develop Fire Support Plan
17-2-2657	Develop Obstacle Plan
17-2-0014	Develop Air Defense Plan
17-2-3809	Develop CSS Plan

**Chart 6: ARTEP 17-57-10-MTP Tasks Not Recommended (System Supportability)**

<b>Task #</b>	<b>Task</b>
17-3-0065	Conduct Troop Leading Procedures
17-3-2000	Conduct Assembly Area Activities
17-3-0104	Prepare a Platoon Fire Plan

**Chart 7: Cavalry Troop Candidate Task List**

<b>Task #</b>	<b>Task</b>
17-2-3808	Operate Troop Command Post
17-2-1185	Establish and Maintain Communications
17-2-3820	Report Combat Information
17-2-3821	Pass Combat Information and Orders
17-2-3807	Employ Command and Control Measures
17-2-4000	Perform Route Reconnaissance
17-2-4010	Perform Zone Reconnaissance
17-2-2225	Perform Screen Operations
17-2-9304	Perform Movement to Contact
17-2-9264	Delay in Troop Sector
17-2-9263	Defend in Troop Sector
17-2-9260	Defend a Battle Position
17-2-2360	Perform Actions on Contact
17-2-9305	Perform Hasty Attack
17-2-3814	Conduct Tactical Movement
17-2-3806	Perform Tactical Road March
17-2-R331	Occupy an Assembly Area
17-2-2884	Perform Passage of Lines
17-2-2460	Assist Passage of Lines
17-2-3070	Perform Hasty Obstacle Breaching
44-2-C308	Take Active Air Defense Measures
44-2-C307	Use Passive Air Defense Measures
17-2-5275	Organize Troop Combat Service Support
17-2-3800	Perform Resupply Operations
17-2-3802	Perform Troop Maintenance Operations

**Chart 8: Scout Platoon Candidate Task List**

<b>Task #</b>	<b>Task</b>
17-3-2760	Conduct Link Up
17-3-1039	Establish an Observation Post
17-3-1012	Conduct a Tactical Road March
17-3-1016	Conduct Tactical Movement
17-3-1014	Coordinate/Conduct Passage of Lines
17-3-1015	Coordinate/Assist Passage of Lines
17-3-1021	Execute Action on Contact
17-3-3061	Conduct Overwatch Support by Fire
17-3-4130	Conduct a Dismounted Patrol at Team Level
17-3-4010	Conduct an Area/Zone Reconnaissance
17-3-2420	Conduct Bypass Operations
17-3-0218	Conduct Reconnaissance by Fire
17-3-2450	Destroy an Inferior Force
17-3-1023	Conduct a Screen
17-3-2601	Conduct Hasty Occupation of a Platoon BP
17-3-2605	Conduct a Platoon Defense
17-3-2627	Displace to an Alternate/Successive Screen Line
17-3-2602	Conduct Deliberate Occupation of a Platoon BP
17-3-1025	Conduct a Relief in Place
44-3-C001	Conduct Passive Air Defense Measures
12-3-C021	Conduct Consolidation and Reorganization Measures
17-3-1030	Conduct Resupply Operations



Chart 9 contains the actions required for the mounted crew orientation exercise.

<b>Actions</b>
Drive through a wadi.
Drive over an breached antitank ditch on an AVLB.
Drive through a breached antitank mine field.
Drive around a wire obstacle.
Observe OPFOR and BLUFOR combat, combat support, and combat service support vehicles.
Receive fuel and ammunition from a HEMTT.
Occupy a prepared fighting position.
Observe OPFOR and BLUFOR RWA and FWA in flight.
Observe artillery HE and HE air burst, and mortar HE and SMOKE.
Engage OPFOR combat vehicles.
Observe an OPFOR anti-tank missile being launched and in flight.
Observe a Flare.
Conduct night movement.
Conduct air assault operations (M2A2 exercise only).

Chart 10 lists the actions required for the dismounted infantry orientation exercise.

Actions
<p>Conduct an ambush.</p> <p>Resupply from prestocked position.</p> <p>Change Squad Leader/Platoon Leader viewpoint.</p> <p>Designate a route.</p> <p>Move the squad/platoon.</p> <p>Monitor the pace count.</p> <p>Change speed.</p> <p>Change formations.</p> <p>Change spacing.</p> <p>Fire all squad/platoon weapons.</p> <p>Designate sectors of fire.</p> <p>Set up weapons.</p> <p>Select rate of fire.</p> <p>Select a target and engage it with a selected weapon.</p> <p>Use binoculars.</p> <p>Install mines.</p> <p>Mount/dismount troop-carrying rotary wing aircraft.</p> <p>Load SINCGARS presets.</p> <p>Observe OPFOR and BLUFOR ground systems.</p> <p>Walk through a breached mine field.</p> <p>Breach a wire obstacle.</p>

Chart 11, located on this and the following page, lists the actions required for the unit support workstation operator orientation exercise.

Actions	CES	FABTOC	FDC	FSE	UMCP	CTCP
Move a unit along a route.	X	X	X	X	X	X
Direct a unit to follow a vehicle.	X	X	X	X	X	X
Halt a unit that is moving.	X	X	X	X	X	X
Resume movement of a halted unit.	X	X	X	X	X	X
Dispatch a unit immediately.	X	X	X	X	X	X
Dispatch a unit at a designated time.	X	X	X	X	X	X
Dispatch a unit on command.	X	X	X	X	X	X
Request repair of a damaged vehicle.	X	X	X	X		X
Repair a damaged vehicle.					X	
Recover a damaged vehicle.					X	
Fire an Illumination mission.		X	X			
Move a unit to an Alternate Position.		X				
Perform a Hipshoot mission.		X	X			
Fire an HE mission.		X	X			
Fire a Smoke mission.		X	X			
Fire a VT mission.		X	X			
Perform an Emergency Resupply.	X	X	X	X	X	X
Launch an AVLB.	X					

<b>Actions</b>	<b>CES</b>	<b>FABTOC</b>	<b>FDC</b>	<b>FSE</b>	<b>UMCP</b>	<b>CTCP</b>
Breach a minefield using a MICLIC and other CES assets.	<b>X</b>					
Breach a tank ditch.	<b>X</b>					
Emplace a minefield.	<b>X</b>					
Mark a minefield.	<b>X</b>					
Dig a tank fighting position.	<b>X</b>					
Relocate a prestock.						<b>X</b>
Perform a Scheduled Resupply.	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

Chart 12, located on this and the following two pages, lists the actions required for the manned modules in the unit support workstation exercise.

<b>Actions</b>	<b>M981 FIST-V</b>	<b>M113</b>	<b>HMMWV</b>
Fire the M2 Cal .50 machine gun.		<b>X</b>	
Load and unload the M2 Cal .50 machine gun.		<b>X</b>	
Transfer ammunition from the Cal.50 stowage to the ready box.		<b>X</b>	
Determine vehicle azimuth.		<b>X</b>	
Load SINCGARS presets.	<b>X</b>	<b>X</b>	<b>X</b>
Receive fuel from a HEMMT.	<b>X</b>	<b>X</b>	<b>X</b>
Load smoke grenade launchers.	<b>X</b>	<b>X</b>	
Perform LOGPAC Linkup.	<b>X</b>	<b>X</b>	<b>X</b>
Perform resupply.	<b>X</b>	<b>X</b>	<b>X</b>
Transfer ammunition from stowage to the crew served weapon.			<b>X</b>
Determine the azimuth of a point on the ground, dismounted.			<b>X</b>
Mount observer.			<b>X</b>
Dismount observer.			<b>X</b>
Move observer.			<b>X</b>
Fire observers weapon.			<b>X</b>
Move observer to standing, kneeling, and prone position.			<b>X</b>

<b>Actions</b>	<b>M981 FIST-V</b>	<b>M113</b>	<b>HMMWV</b>
Engage a stationary OPFOR truck at medium range.	X	X	X
Observe an OPFOR tank and BMP with a mobility kill at medium range.	X	X	X
Observe an OPFOR tank and BMP with a mobility kill at short range.	X	X	X
Observe an OPFOR tank and BMP with a firepower kill at medium range.	X	X	X
Observe an OPFOR tank and BMP with a firepower kill at short range.	X	X	X
Observe an OPFOR tank and BMP with a catastrophic kill at medium range.	X	X	X
Observe an OPFOR tank and BMP with a catastrophic kill at short range.	X	X	X
Drive across an AVLB.	X	X	X
Drive across a wadi.	X	X	X
Drive through a breached tank ditch.	X	X	X
Drive through a breached mine field.	X	X	X
Drive through a breached wire obstacle.	X	X	X
Observe 155mm HE detonation.	X	X	X
Observe 155mm Smoke.	X	X	X
Observe 155 mm HE air burst.	X	X	X
Observe a Flare.	X	X	X
Occupy a defilade position.	X	X	X

<b>Actions</b>	<b>M981 FIST-V</b>	<b>M113</b>	<b>HMMWV</b>
Observe a BLUFOR dismounted infantry squad at close range.	X	X	X
Observe a BLUFOR dismounted infantry squad at medium range.	X	X	X
Observe a BLUFOR dismounted infantry squad at medium range.	X	X	X
Observe a OPFOR dismounted infantry squad at close range.	X	X	X
Observe a dead OPFOR dismounted infantry squad at close range.	X	X	X
Observe a OPFOR dismounted infantry squad at medium range.	X	X	X
Observe a OPFOR anti-tank Missile being launched and while in flight.	X	X	X
Observe a OPFOR and BLUFOR while FWA in flight.	X	X	X
Observe a OPFOR and BLUFOR RWA while in flight.	X	X	X
Fire vehicle mounted weapon.			X
Fire the M60 machine gun.	X		
Load and unload the M60 machine gun.	X		
Transfer ammunition from the 7.62mm stowage to the ready box.	X		
Operate binoculars.	X	X	X
Fire smoke grenade launchers.	X	X	X
Fire a Copperhead mission.	X	X	X
Fire a High Explosive (HE) mission.	X	X	X
Fire a Variable Time (VT) mission.	X	X	X
Receive fuel from a HEMMT.	X	X	X

## Appendix D

### Task Force Schedule

The next three pages contain the recommended five day training schedule used during the battalion task force DIS exercise trial.

<b>CCTT Task Force Exercise Training Schedule: Day 1 (Train-up Day)</b>				
<b>Unit:</b>		<b>Date:</b>		
<b>Time</b>	<b>Personnel</b>	<b>Activity</b>	<b>Location</b>	<b>Trainers</b>
0900 - 1000	ALL	CCTT Site Initial Briefing	AAR rooms	CCTT Site
1000 - 1200	Vehicle crew members	Individual manned module training	AAR rooms; Manned Module Area	CCTT Site
1000 - 1200	Unit support W/S operators	Interactive courseware (ICW) instruction	Unit W/S operation center	CCTT Site
1000 - 1200	O/C Team	CCTT Site Familiarization: <ul style="list-style-type: none"> <li>• AAR Station Familiarization</li> <li>• Command Post Familiarization</li> <li>• Unit Support Workstations</li> </ul>	CCTT Site	CCTT Site
1000 - 1200	Task Force Staff	Set up Main CP/CTCP	CCTT Main CP/CTCP	Task Force XO
1200 - 1300	Lunch			
1300 - 1700	Vehicle crew members	Orientation Exercises	AAR rooms; Manned Module Area	CCTT Site
1300 - 1700	Unit support W/S operators	Orientation Exercises	Unit W/S operation center	CCTT Site
1700 - 1800	Unit, site, O/C Team	Troop Leading Procedures (TLP): <ul style="list-style-type: none"> <li>• Task Force MTC OPORD backbrief to the unit and the CCTT Site,</li> <li>• distribution of the DIS OPLAN, and</li> <li>• leader's initial reconnaissance.</li> </ul>	AAR rooms	Task Force Cdr; AAR W/S operator



<b>CCTT Task Force Exercise Training Schedule: Day 2 (MTC Rehearsals)</b>				
<b>Unit:</b>		<b>Date:</b>		
<b>Time</b>	<b>Personnel</b>	<b>Activity</b>	<b>Location</b>	<b>Trainers</b>
0800 - 1200	Task Force staff personnel, unit support W/S operators	TLP: <ul style="list-style-type: none"> <li>Task Force staff rehearsal</li> </ul>	CCTT Main CP/CTCP	Task Force XO; O/C Team
0800 - 1200	Vehicle crew members	CFS exercises	AAR rooms; Manned Module area	O/C Team
1200 - 1300	Lunch			
1300 - 1400	Selected Personnel	Leader's Recon	AAR rooms	Co Cdrs
1300 - 1500	All	MTC Tactical Movement Exercise	AAR rooms; Manned Module area	O/C Team
1500 - 1700	Unit leaders, unit support W/S operators, site	TLP: <ul style="list-style-type: none"> <li>Rock drill</li> </ul>	TBD	Task Force Cdr; O/C Team

<b>CCTT Task Force Exercise Training Schedule: Day 3 (MTC Execution)</b>				
<b>Unit:</b>		<b>Date:</b>		
<b>Time</b>	<b>Personnel</b>	<b>Activity</b>	<b>Location</b>	<b>Trainers</b>
0700 - 0800	All	Exercise Preview	AAR Rooms	Senior O/C; O/C Team
0800 - UTC	All	MTC Exercise execution (may re-run portions of the exercise)	CCTT Site	Senior O/C; O/C Team
1315 - 1415	All	Lunch		
1400 - 1415	O/C Team	Preparation for team and staff section AARs	AAR rooms; Unit W/S operations center	Senior O/C; O/C Team
1415 - 1500	Team members	Team AARs	AAR rooms	Team O/Cs
1415 - 1430	Staff section members	Staff section AARs	CCTT Main CP/CTCP	Staff Section O/Cs
1430 - 1500	Staff section members	Main CP AAR	CCTT Main CP	Staff Section O/Cs
1500 - 1700	All	MTC Exercise TF AAR	AAR Room 1	Senior O/C; O/C Team
1700 - 1800	All	Change of Mission Brief	AAR Rooms	Senior O/C; O/C Team

<b>CCTT Task Force Exercise Training Schedule: Day 4 (DIS Execution Part 1)</b>				
<b>Unit:</b>		<b>Date:</b>		
<b>Time</b>	<b>Personnel</b>	<b>Activity</b>	<b>Location</b>	<b>Trainers</b>
0700 - 0900	All	Exercise Preview	AAR Rooms	Senior O/C; O/C Team
0900 - 1200	All	DIS Execution Part 1 (Events 1-3)	CCTT Site	Task Force Cdr
1200 - 1300	All	Lunch		
1300 - 1315	O/C Team	Preparation for team and staff section AARs for Part 1	AAR rooms; Unit W/S operations center	Senior O/C; O/CTteam
1315 - 1400	Team members	Team AARs for Part 1	AAR rooms	Team O/Cs
1315 - 1330	Staff section members	Staff section AARs for Part 1	CCTT Main CP/CTCP	Staff Section O/Cs
1330 - 1400	Staff section members	Main CP AAR for Part 1	CCTT Main CP	Staff Section O/Cs
1400 - 1500	All	Task Force AAR for Part 1	AAR Room 1	Senior O/C; O/C Team

<b>CCTT Task Force Exercise Training Schedule: Day 5 (DIS Execution Part 2)</b>				
<b>Unit:</b>		<b>Date:</b>		
<b>Time</b>	<b>Personnel</b>	<b>Activity</b>	<b>Location</b>	<b>Trainers</b>
0700 - 0800	All	Exercise Preview	AAR Rooms	
0800 - EOM	All	DIS Exercise Execution Part 2 (Events 4-8)	CCTT Site	O/C Team
1300 - 1400	All	Lunch		
1400 - 1415	O/C Team	Preparation for team and staff section AARs for Part 2	AAR rooms; Unit W/S operations center	Senior O/C; O/C Team
1415 - 1500	Team members	Team AARs for Part 2	AAR rooms	Team O/Cs
1415 - 1430	Staff section members	Staff section AARs for Part 2	CCTT Main CP/CTCP	Staff Section O/Cs
1430 - 1500	Staff section members	Main CP AAR for Part 2	CCTT Main CP	Staff Section O/Cs
1500 - 1600	All	Final Task Force AAR/End of rotation AAR	AAR Room 1	Senior O/C; O/C Team

# Appendix E

## Survey Examples and Results

<b>Battalion Task Force Trials</b>	
<b>Title</b>	<b>Page</b>
Unit Members, Demographic	E-2
CLS Operator, Demographic	E-4
Unit Members, Post-exercise	E-10
O/C Team, Post-exercise	E-15
CLS Operator, Post-exercise	E-20

<b>Cavalry Troop and Scout Platoon Trial (includes Orientation Exercises)</b>	
<b>Title</b>	<b>Page</b>
Unit Members, Demographic	E-22
Unit Members, Orientation Exercises	E-24
Workstation Operators, Orientation Exercises	E-25
Unit Members, Scout Platoon (Day 1)	E-26
Unit Members, Scout Platoon (Day 2)	E-28
Unit Members, Cavalry Troop (Day 1)	E-30
Unit Members, Cavalry Troop (Day 2)	E-32

# Unit Members, Demographic Information Battalion Task Force Exercise Trial

1. Please write the first letter of your last name in the space provided; \_\_\_\_\_

2. Please write the last four digits of your social security number; \_\_\_\_\_

3. Rank/Grade:

- |   |   |
|---|---|
| <input type="checkbox"/> 1] COL/05 or above | <input type="checkbox"/> 0] MSG or 1SG/E8 |
| <input type="checkbox"/> 2] MAJ/04          | <input type="checkbox"/> 2] SFC/E7        |
| <input type="checkbox"/> 8] CPT/03          | <input type="checkbox"/> 5] SSG/E6        |
| <input type="checkbox"/> 12] 1LT/02         | <input type="checkbox"/> 6] SGT/E5        |
| <input type="checkbox"/> 15] 2LT/01         | <input type="checkbox"/> 5] SPC or below  |

4. Time in grade: 2.19 (years) (overall average for unit)

5. Time in Service: 6.34 (years) (overall average for unit)

6. MOS/SC \_\_\_\_\_ (N/A for this summary)

7. Current Duty Position:

- |  |   |
|--|---|
| <input type="checkbox"/> 1] Task Force Commander         | <input type="checkbox"/> ] Brigade Commander        |
| <input type="checkbox"/> 1] Task Force Executive Officer | <input type="checkbox"/> ] Brigade Engineer         |
| <input type="checkbox"/> 7] Company Commander            | <input type="checkbox"/> ] Brigade FSO              |
| <input type="checkbox"/> 2] Company Executive Officer    | <input type="checkbox"/> ] Brigade Staff Officers   |
| <input type="checkbox"/> 15] Platoon Leader              | <input type="checkbox"/> ] G2/Assistant G2          |
| <input type="checkbox"/> 1] Platoon Sergeant             | <input type="checkbox"/> 2] S1/Assistant S1         |
| <input type="checkbox"/> 2] Tank/Bradley Commander       | <input type="checkbox"/> 5] S2/Assistant S2         |
| <input type="checkbox"/> 1] Tank/Bradley Gunner          | <input type="checkbox"/> 6] S3/Assistant S3         |
| <input type="checkbox"/> ] Tank Loader                   | <input type="checkbox"/> 1] S4/Assistant S4         |
| <input type="checkbox"/> ] Bradley Squad Leader          | <input type="checkbox"/> 15] Other (please specify) |
| <input type="checkbox"/> ] Tank/Bradley Driver           | _____   |

8. Time in Position:

- |                              |                       |
|------------------------------|-----------------------|
| <input type="checkbox"/> 35] | 0 - 11 months         |
| <input type="checkbox"/> 8]  | 1 - less than 2 years |
| <input type="checkbox"/> 4]  | 2 - less than 4 years |
| <input type="checkbox"/> 3]  | 4 years or more       |

9. Role during this training period.

- |      |                           |      |   |
|------|---------------------------|------|---|
| [ 1] | Task Force Commander      | [ 1] | S4  |
| [ 3] | Company Commander         | [ 1] | FDC Workstation Operator                    |
| [ 2] | Company Executive Officer | [ 2] | FSE Workstation Operator                    |
| [12] | Platoon Leader            | [ 3] | FABTOC Workstation Operator                 |
| [ ]  | Platoon Sergeant          | [ 1] | CES Workstation Operator                    |
| [ 1] | Tank/Bradley Commander    | [ 1] | CTCP Workstation Operator                   |
| [ 1] | Tank/Bradley Gunner       | [ 1] | UMCP Workstation Operator                   |
| [ ]  | Tank Loader               | [ 1] | Senior O/C                                  |
| [ ]  | Bradley Squad Leader      | [ 9] | Observer/Controller (other than Senior O/C) |
| [ ]  | Tank/Bradley Driver       | [ ]  | Executive Controller                        |
| [ 1] | S1                        | [ ]  | Controller (HHQ, and OPFOR)                 |
| [ 4] | S2                        | [10] | Other (please specify)                      |
| [ 5] | S3                        |      |   |
- 

N/A for this summary:

10. How many times have you trained in SIMNET in the past 2 years? \_\_\_\_\_ (separate visits)
11. How many times have you trained in CCTT in the past 2 years? \_\_\_\_\_ (separate visits)
12. How many NTC rotations have you completed in the past 2 years? \_\_\_\_\_ (rotations)

## CLS Operators, Demographic Information Battalion Task Force Exercise Trial

1. Please write the first letter of your last name in the space provided; \_\_\_\_\_

2. Please write the last four digits of your social security number; \_\_\_\_\_

3. Do you have previous military experience?      ☐ [10] Yes    ☐ [0] No

If yes, please provide the following information: N/A for this summary

Branch \_\_\_\_\_ MOS/SC \_\_\_\_\_

When you left the service what was your Rank/Grade \_\_\_\_\_

Time in Service: 20 (years) (average for CLS team)

4. What is your current civilian position? ( N/A, however, most were simulation technicians)

5. How long have you been in this position? 2.5 (years) (average for CLS team)

6. What will be your position during the Task Force exercises:

☐ [ 1] MC/MCC Workstation Operator

☐ [ 1] Lead AAR Workstation Operator

☐ [ 4] AAR Workstation Operator

☐ [ 3] BLUFOR Workstation Operator

☐ [ 1] OPFOR Workstation Operator

☐ [ ] Other (please specify)  
\_\_\_\_\_

## Vehicle Commanders and Above, Post-exercise Battalion Task Force Exercise

1. Please place an "X" in the block(s) provided indicating which of the DIS pre-exercise materials you received and used. If you did not receive any of the materials, answer No to each item and go to question 2.

Materials	Did you receive it?		Did you read/use it?		If you read/used it, was it useful in preparing for these exercises?			
	Yes	No	Yes	No	Yes	Somewhat	Not Very	No
Training Participant Roles and Responsibilities, Part 2	6	18	6	6	1	3	1	
DIS Brigade OPORD, Appendix B	7	16	6	7	1	2	2	2
DIS Task Force OPORDS, Appendix C	14	8	13	3	5	4	3	1
Task Force DIS Task Chart, Appendix H	4	17	3	7	1	1	1	3
DIS Maps and Overlays	18	4	17	1	15	3		
Other (specify): _____ _____								

2. Use an "X" to indicate the exercise preparation activities, which began after you arrived at the site, in which you participated this week. Also, indicate how useful they were in preparing for and executing the DIS exercise.

Activity	Participated?		If YES, how useful were the activities in preparing for and executing the DIS exercise?				
	Yes	No	Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful
Site initial briefing	23	2	1	7	12	2	1
Task Force plan back brief	21	1	2	1	11	4	3
Individual manned module training	13	9	1		6	3	3
Familiarization course	13	10	2	1	7	2	2
Command From Simulator (CFS) exercise	8	15	2	1	1	2	2
Staff rehearsals	6	13	3		5	3	1
MTC rock drills	22	1	1	1	10	6	4
MTC Tactical Movement Exercise	22	1	1		11	5	5
MTC exercise preview	16	8	2	1	8	3	2
MTC exercise	24	1	1		11	5	7
MTC AAR	24	2	2		12	7	2
Defensive occupation exercise	23	4	1	1	10	6	3
DIS rock drills	23	1	1	1	12	6	3
DIS exercise preview	16	6	2		9	4	2
Other (please specify): _____ _____							

3. Which two exercise preparation activities were the most helpful to prepare and execute the DIS exercise? Select from the list (including other) found on the previous page.

Activity	Why was it helpful?
Rock Drill/Rehearsal	14
MTC Exercise	7

4. Prior to the start of the DIS exercise, a preview was conducted. Please answer the following questions and for any step that did not occur, place an "X" in the N/A box.

Did you attend the exercise preview? [11] Yes [12] No (go to question 5)

Do you feel the preview was helpful? [10] Yes [ 1] No

Were you clear about the tasks that would be performed? [ 7] Yes [ 3] No

How useful were these steps in preparing for the DIS exercise?

	Conducted by	Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful	N/A
Exercise Introduction	Senior O/C		3	3	2	1	1
Review of tasks	Ex. Controller		2	4	1	2	1
Review of tactical situation	Task Force Cdr			5		4	1
Administrative Briefing	Ex. Controller		2	4		1	3

5. After the exercise preview, you were given time before the exercise began. What activities were you involved with during that time? Please place an "X" by all that apply.

If checked, rate the amount of time for each activity

Exercise Preparation Activity	"X"	Too Much	About Right	Too Little
Review the Mission	19	1	14	6
Reconnaissance	18		3	12
Complete the Plan	19	1	13	7
Issue the Order	18		13	7
Supervise and Refine	19		14	8
Pre-operation Checks	17	1	12	5
Other (please specify):				



6. During the table the unit performed a series of tasks within the DIS exercise. Check whether the actions, tasks, and events which occurred need revision as listed in the questions below. Make specific comments to clarify your answers in the space provided.

#### Does it Need Revision?

Sequence of events  
Appropriateness of the tasks  
Matching of tasks to events

A Lot	Some	A Little	No	Not Sure
2	7	3	9	2
2	4	2	14	1
3	3	4	12	1

#### Level of Difficulty

Knowing when to perform tasks  
Performing the tasks

Too Easy	Easy	About Right	Hard	Too Hard
	1	22		
		19	3	

#### Exercise Completeness

**The Exercise...**  
included all appropriate tasks  
did not include inappropriate tasks  
represents a complete set of  
events and tasks for the mission

Strongly Agree	Moderately Agree	Neither Agree or Disagree	Moderately Disagree	Strongly Agree
1	9	2	9	1
4	10	4	4	
1	6	1	9	2

#### Message Traffic

**The Amount of Message Traffic Received...**  
from higher headquarters was  
from adjacent units was

Too Little	Needs a Little More	About Right	Needs a Little Less	Too Much
3	3	15	1	2
6	4	12	1	

#### Message Traffic

**The Realism of Messages...**  
from higher headquarters was  
from adjacent units was

Not Realistic	Somewhat Realistic	Realistic	Moderately Realistic	Very Realistic
	5	17		
3	4	15		

7. Computer-generated (SAF) vehicles, not manned simulators, were used to complete BLUFOR platoons. Please answer the following questions by placing an "X" in the appropriate box and describe your answers in the space provided.

Did the use of SAF vehicles seem realistic?

Did the SAF vehicles respond promptly?

Did the use of SAF detract from the value of the training exercise?

Yes	No
5	16
8	13
8	13

8. Place an "X" in the box indicating which choice best describes your answer to the questions below for the tasks covered in the DIS exercise.

How well do you feel you could do these tasks prior to the exercise?

How well do you feel you could do these tasks after the exercise?

How well do you feel the task force could do these tasks prior to the exercise?

How well do you feel the task force could do these tasks after the exercise?

Extremely Well	Very Well	Well	Fairly Well	Not Very Well
	2	13	6	1
	8	13	1	
	1	10	9	2
	5	14	3	

9. After Action Reviews (AAR) follow the DIS training exercise. The following questions pertain to the Task Force AAR only.

Did the step occur?

Does it need revision?

Steps	Yes	No	Unsure
Exercise Task Review (task list)	23		1
Scenario Analysis (what happened during the exercise)	24	1	
Unit Discussion (why things happened in the exercise)	24	1	
Exercise Assessment (sustain/improve assessment)	25		

Yes	Somewhat	No
2	5	15
1	6	16
1	5	17
1	2	18

10. Please rate the time spent participating in the following DIS exercise activities.

**Amount of Time Spent**

	<b>Too Little</b>	<b>Needs a Little More</b>	<b>About Right</b>	<b>Needs a Little Less</b>	<b>Too Much</b>
Exercise Preview	5	4	12	1	2
Final Exercise Preparation	4	6	13	1	1
Exercise Execution	4	4	14		3
After Action Review		1	12	6	5

## Unit Support Workstation Operators, Post-exercise Battalion Task Force Exercise

1. Please place an "X" in the block(s) provided indicating which of the DIS pre-exercise materials you received and used. If you did not receive any of the materials, answer No to each item and go to question 2.

Materials	Did you receive it?		Did you read/use it?		If you read/used it, was it useful in preparing for these exercises?			
	Yes	No	Yes	No	Yes	Somewhat	Not Very	No
Training Participant Roles and Responsibilities, Part 2		3						
DIS Brigade OPORD, Appendix A		3						
DIS Task Force OPORDS, Appendix B	3		3		1	2		
Communication Materials, Appendix C		3						
Execution Guidelines, Appendix E	2	1	2		1	1		
Other (specify):								
_____								
_____								

2. Use an "X" to indicate the exercise preparation activities, which began after you arrived at the site, in which you participated this week. Also, indicate how useful they were in preparing for and executing the DIS exercise.

Activity	Participated?		If YES, how useful were the activities in preparing for and executing the DIS exercise?				
	Yes	No	Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful
Site initial briefing	3		1		1	1	
Interactive courseware instruction (ICW)	3				2	1	
Familiarization course	3			1	1	1	
Command From Simulator (CFS) exercise	1	2			1		
Workstation practical exercise	3			1	1	1	
MTC Tactical Movement Exercise	2	2		2			
MTC exercise preview	2	1		2			
MTC exercise	3			2			1
MTC AAR	2	1		1			1
Defensive occupation exercise	3		1	1			1
DIS rock drills	2	1		1	1		
DIS exercise preview	2	1		1			
Other (please specify):							

3. Which two exercise preparation activities were the most helpful to prepare and execute the DIS exercise? Select from the list (including other) found on the previous page.

Activity	Why was it helpful?
Workstation Practical Ex.	2

4. Prior to the start of the DIS exercise, a preview was conducted. Please answer the following questions and for any step that did not occur, place an "X" in the N/A box.

Did you attend the exercise preview? [ 2 ] Yes [ 1 ] No (go to question 5)

Do you feel the preview was helpful? [ 1 ] Yes [ 1 ] No

Were you clear about the tasks that would be performed? [ 2 ] Yes [ ] No

How useful were these steps in preparing for the DIS exercise?

	Conducted by	Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful	N/A
Exercise Introduction	Senior O/C	1		1			
Review of tasks	Ex. Controller			1			1
Review of tactical situation	Task Force Cdr			2			
Administrative Briefing	Ex. Controller	1		1			

5. After the exercise preview, were you given enough time to prepare your workstation before the exercise began?

[ 3 ] Yes [ ] No

6. During the table the unit performed a series of tasks within the context of a larger tactical mission. Check whether the actions, tasks, and events which occurred need revision as listed in the questions below. Make specific comments to clarify your answers in the space provided.

#### Does it Need Revision?

Sequence of events  
Appropriateness of the tasks  
Matching of tasks to events

A Lot	Some	A Little	No	Not Sure
1	1		1	
1	1		1	
1			2	

#### Level of Difficulty

Knowing when to perform tasks  
Performing the tasks

Too Easy	Easy	About Right	Hard	Too Hard
		2		
1		1		

#### Exercise Completeness

##### The Exercise...

included all appropriate tasks  
did not include inappropriate tasks  
represents a complete set of  
events and tasks for the mission

Strongly Agree	Moderately Agree	Neither Agree or Disagree	Moderately Disagree	Strongly Disagree
	1		1	1
	1	1	1	
		1	2	

#### Message Traffic

The Amount of Message  
Traffic Received...  
from higher headquarters was  
from adjacent units was

Too Little	Needs a Little More	About Right	Needs a Little Less	Too Much
		3		
1		2		

#### Message Traffic

The Realism of Messages...  
from higher headquarters was  
from adjacent units was

Not Realistic	Somewhat Realistic	Realistic	Moderately Realistic	Very Realistic
		3		
		3		

7. Now that you have completed the DIS exercise, is there anything you wish you had known that should be added to the exercise or exercise materials? (also, describe anything you received that you did not need. If needed, use additional space on page 18)

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8. The **Event Guide** is the primary control tool used during an exercise. Indicate the usefulness of the event guide and it's individual sections by placing an "X" in the appropriate box. Clarify your responses by writing in the space below.

Event Guide Sections:	Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful
Event and O/C Action		1	1		1
Unit Action		1	1	1	
SAF Action (BLUFOR/OPFOR)	1			1	1
Support Workstation Action			2		1
ARTEP Information			3		
AAR Observations			1		2
Time/Comments			3		
The Complete Event Guide (in general)					

9. After Action Reviews (AAR) follow the DIS training exercise. The following questions pertain to the Task Force AAR only.

Steps	Did the step occur?			Does it need revision?		
	Yes	No	Unsure	Yes	Somewhat	No
Exercise Task Review (task list)	2					2
Scenario Analysis (what happened during the exercise)	2					2
Unit Discussion (why things happened in the exercise)	2					2
Exercise Assessment (sustain/improve assessment)	2					2

10. Did you participate in the preparation of the Task Force AAR? [ ] Yes [ 2 ] No

11. Please rate the time spent conducting the following activities.

**Amount of Time Spent**

Table Preview  
 Final Exercise Preparation  
 Exercise Execution  
 After Action Review

Too Little	Needs a Little More	About Right	Needs a Little Less	Too Much
		2		
		2		
	1		1	
		1	1	



## O/C Team, Post-exercise Battalion Task Force Exercise

Please indicate with an "X" beside the O/C team position you served in during the DIS exercise:

O/C Position	"X"
Senior	1
CTCP	1
Main CP/S3	
FSE	1
Engineer	1
Company/Team (Circle the Team) A B C D	4

O/C Position	"X"
Exercise Controller	
OPFOR Controller	
S2 Section	1
Scout	
Other (please specify):	1

Have you served, in an official capacity, as an O/C before? [ 1 ] Yes [ 9 ] No

1. Please place an "X" in the block(s) provided indicating which of the Defend in Sector (DIS) pre-exercise materials you received and used. If you did not receive any of the materials, answer No to each item and go to question 2.

	Did you Receive it?		Did you read/use it?		If you read/used it, was it useful in preparing for these exercises?			
	Yes	No	Yes	No	Yes	Somewhat	Not Very	No
Training at the Task Force Level (Part 1)	4	5	1	3		2		1
Training Unit Roles & Responsibilities (Part 2)	5	4	3	2		3		1
CCTT Site Roles & Responsibilities (Part 3)	5	4	3	2		2	1	1
O/C Team Roles & Responsibilities (Part 4)	8	1	6	1	4	1		
DIS Exercise Guide (Part 6)	8	1	4	2	2	2		
<u>Part 6 Appendices</u>								
DIS Brigade OPORD (Appendix A)	6	3	4	2	2			3
DIS Task Force OPORD (Appendix B)	10		8	1	4	1	2	1
Communication Materials (Appendix C)	7	2	5	1	3	1	1	
Supporting Documentation (Appendix D)	5	4	2	3	1	1		
Workstation Execution Guidelines (Appendix E)	4	4	2	4	1	1		1
DIS Exercise Observation forms (Appendix F)	9	1	9	1	4	3	2	
Exercise AAR materials (Appendix G)	7	1	7	1	2	4	1	1
DIS Task Chart (Appendix H)	5	3	4	6	1	3		1
Defense Occupation Exercise (Appendix I)	7	3	5	2	2	2	1	
<u>General Appendices</u>								
CFS Practical Exercises (Appendix B)	2	6	1	1			1	
Workstation Practical Exercise(Appendix C)	2	7	1	2			1	1
Other (Please specify):		1						

2. Use an "X" to indicate the exercise preparation activities, which began after you arrived at the site, in which you participated this week. Also, indicate how useful they were in preparing for and executing the DIS exercise.

If YES, how useful were the activities in preparing for and executing the DIS exercise?

Activity	Participated?		Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful
	Yes	No					
Site initial briefing	6	4			5		1
Task Force plan back brief	8	2		1	5	1	1
Command From Simulator (CFS) Exercise	4	6		1	3		1
MTC rock drills	10			1	7		2
MTC Tactical Movement Exercise	9	1		1	5		3
MTC exercise	10				6	1	3
MTC AAR	10				7		3
Defensive occupation exercise	8	2			5	1	2
DIS rock drills	10			1	5	2	2
DIS exercise preview	6	3			6		1
Other (please specify):							

3. Which two exercise preparation activities were the most helpful to prepare and execute the DIS exercise? Select from the list (including other) found on the previous page.

Activity	Why was it helpful?
Defense Occupation Exercise	5
Rock Drill/Rehearsal	4

4. Prior to the start of the DIS exercise, a preview was conducted. Please answer the following questions and for any step that did not occur, place an "X" in the N/A box.

How useful were these steps in preparing the unit for the DIS exercise?

	Conducted by	Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful	N/A
Exercise Introduction	Senior O/C			6		1	2
Review of tasks	Ex. Controller			6	1		2
Review of tactical situation	Task Force Cdr			5	2	1	1
Administrative Briefing	Ex. Controller			5	2		2

5. During the exercise the unit performed a series of tasks within the context of the DIS exercise. Check whether the actions, tasks, and events which occurred need revision as listed in the questions below. Make specific comments to clarify your answers in the space provided.

#### Does it Need Revision?

Sequence of events  
Appropriateness of the tasks  
Matching of tasks to events

A Lot	Some	A Little	No	Not Sure
1	2	1	5	
1	1	2	4	1
	1	2	5	1

#### Level of Difficulty

Knowing when to perform tasks  
Performing the tasks

Too Easy	Easy	About Right	Hard	Too Hard
1	2	6		
1		5	2	

#### Exercise Completeness

**The Exercise...**  
included all appropriate tasks  
did not include inappropriate tasks  
represents a complete set of  
events and tasks for the mission

Strongly Agree	Moderately Agree	Neither Agree or Disagree	Moderately Disagree	Strongly Agree
	5	1	2	
	7		1	
	5	2	1	

#### Message Traffic

**The Amount of Message Traffic Received...**  
from higher headquarters was  
from adjacent units was

Too Little	Needs a Little More	About Right	Needs a Little Less	Too Much
3	1	5	1	
5	1	4		

#### Message Traffic

**The Realism of Messages...**  
from higher headquarters was  
from adjacent units was

Not Realistic	Somewhat Realistic	Realistic	Moderately Realistic	Very Realistic
	3	7		
	3	6		

6. Computer-generated (SAF) vehicles, not manned simulators, were used to complete BLUFOR platoons. Please answer the following questions by placing an "X" in the appropriate box and describe your answers in the space provided.

Did the use of SAF vehicles seem realistic?

Did the SAF vehicles respond promptly?

Did the use of SAF detract from the value of the training exercise?

Yes	No
2	4
1	5
4	2

7. The **Event Guide** is the primary control tool used during an exercise. Indicate the usefulness of the event guide and its components. Explain your responses in the space below.

Event/Message Traffic

Task Force Action

OPFOR Action

ARTEP Information

Time

Comments

AAR Observations

Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful
2	3	4		
2	4	4		
2	3	4		1
1	1	4	2	2
6	1	5		1
1		5	1	1
	2	4		2

Entire Event Guide (overall)

	3	3	2	
--	---	---	---	--

8. The **Observation Form** has been revised for the DIS exercise. Indicate the usefulness of the observation form and its components. Explain your responses in the space below.

Activity

Section Actions

Sustain or Improve

Comments

Coaching Points

Section Tasks

Task Standards

Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful
1	2	4		2
1	1	5	1	1
1		3	2	3
1		3	2	3
1	1	3	1	2
1	1	3	1	2
1	1	3	1	3

Entire Observation Form (overall)

	2	3	1	3
--	---	---	---	---

9. Please mark the appropriate box indicating the usefulness of the staff section, command post, and company/team AAR tools?

AAR Tool	Did you find the tool useful?	
	Yes	No
Observation form	6	1
AAR Worksheet	7	
AAR slides	5	1

10. The following questions pertain to the Task Force AAR only.

Steps	Did the step occur?			If yes, was it useful?		
	Yes	No	Unsure	Yes	Somewhat	No
Exercise Task Review (task list)	7	1	1	8		
Scenario Analysis (what happened during the exercise)	9			9		
Task Force Discussion (why things happened in the exercise)	9			9		
Exercise Assessment (sustain/improve assessment)	9			9		

11. Do you feel you had enough time to prepare for the Task Force AAR? [ 6] Yes [ 1] No

12. Please rate the time spent by the task force conducting the following DIS exercise activities.

**Amount of Time Spent**

	Too Little	Needs a Little More	About Right	Needs a Little Less	Too Much
Exercise Preview		1	7		
Final Exercise Preparation		3	6		
Exercise Execution		1	6	1	1
After Action Review			7	2	

## CLS Team Members Post-exercise Battalion Task Force Exercise

1. Please place an "X" in the block(s) provided indicating which of the Defend in Sector (DIS) pre-exercise materials you received and used. If you did not receive any of the items, answer No to each item and go to question 2.

	Did you Receive it?		Did you read/use it?		If you read/used it, was it useful in preparing for these exercises?			
	Yes	No	Yes	No	Yes	Somewhat	Not Very	No
CCTT Site Roles & Responsibilities (Part 3)	2	7	1	3				2
DIS Exercise Guide (Part 6)	6	3	6		5			
<u>Part 6 Appendices</u>	1	5	1	2			1	2
DIS Brigade OPORD (Appendix A)	2	7	2	1	2			1
DIS Task Force OPORD (Appendix B)	1	8	1	2	1			2
Communication Materials (Appendix C)	2	7	2	2	1			2
Supporting Documentation (Appendix D)	1	8	1	2	1			2
Workstation Execution Guidelines (Appendix E)	3	6	3	1	2	1		1
DIS Exercise Observation forms (Appendix F)	2	7	2	2	1			2
Exercise AAR materials (Appendix G)	2	7	2	2	1			2
DIS Task Chart (Appendix H)	2	7	2	2	2			2
<u>General Appendices</u>		7		3				2
CFS Practical Exercises (Appendix B)		9		3				2
Workstation Practical Exercise (Appendix C)		9		3				2
Other materials (Please specify):								
		2		2				2

2. Use an "X" to indicate the exercise preparation activities in which you participated this week and approximately how much time was spent performing the activity.

Activity	Participated?		If YES, how much time did you spend performing the activity?			
	Yes	No	less than 15 minutes	Between 15-29 minutes	Between 30-59 Minutes	Over 1 Hour
Adjusting and testing exercise files	3	5		1		2
Read/studied materials	5	3		2		2
Support CFS exercise	5	1		2	1	2
Support Workstation Practical Exercise	2	4				1
Support Defense Occupation Exercise	6			6		2
Coordinate with the Exercise Controller	2	3		1		1
Other (please specify): <u>Assist ECC</u>	1	1				
<u>AAR</u>	1					1

3. Do you feel you spent the right amount of time performing the activities (in general) in preparation for the DIS exercise?

[ 8] Yes [ 2] No

4. Which two exercise preparation activities were the most helpful to prepare for and execute the DIS exercise?

Activity	Why was it helpful?
CFS Exercise	2
Defense Occupation Exercise	1

5. The **Event Guide** is the primary control tool used during an exercise. Indicate the usefulness of the event guide and its components. Explain your responses in the space below.

	Not Useful	Somewhat Useful	Useful	Fairly Useful	Very Useful
Event/Message Traffic		1	3	2	
Task Force Action			1	6	
OPFOR Action			2	2	1
ARTEP Information			2	2	
Time			1	2	1
Comments			2	1	
AAR Observations			2	2	1
Entire Event Guide (overall)			2		3

6. Now that the DIS exercise has been completed, is there anything you wish you had known that should be added to the exercise or exercise materials? (also, describe anything you received that you did not need. If needed, use additional space on page 7)

N/A for this summary

7. After Action Reviews (AAR) follow the DIS training exercise. The following questions pertain to the Task Force AAR only.

Do you feel you had enough time to prepare for the AAR? [ 5] Yes [ ] No

Did you have all the tools you needed to prepare for the AAR? [ 5] Yes [ ] No

# Unit Members, Demographic Information

## Cavalry Troop and Scout Platoon Exercises

1. Write the first letter of your last name in the space provided; \_\_\_\_\_
2. Write the last four digits of your social security number; \_\_\_\_\_

3. Rank/Grade:

- |   |   |
|---|---|
| <p>[ ] LTC/05 or above</p> <p>[ ] MAJ/04</p> <p>[ 1] CPT/03</p> <p>[ 1] 1LT/02</p> <p>[ 2] 2LT/01</p> | <p>[ ] MSG or 1SG/E8</p> <p>[ 1] SFC/E7</p> <p>[ 3] SSG/E6</p> <p>[ 7] SGT/E5</p> <p>[ 7] SPC/E4 or below</p> |
|---|---|

4. Time in grade: 1.40 (years) (overall average for unit)

5. Time in Service: 5.92 (years) (overall average for unit)

6. MOS/SC \_\_\_\_\_ (N/A for summary)

7. Current Duty Position:

- |   |  |
|---|--|
| <p>[ 1] Troop Commander</p> <p>[ ] Troop Executive Officer</p> <p>[ 3] Platoon Leader</p> <p>[ 1] Platoon Sergeant</p> <p>[ 5] Tank/Bradley Commander</p> <p>[14] Tank/Bradley Gunner</p> | <p>[10] Tank/Bradley Driver</p> <p>[ 3] Tank Loader</p> <p>[ 1] Dismounted Scout</p> <p>[ ] Squad Leader</p> <p>[ 2] Other (please specify)<br/><u>Observer and section sgt.</u></p> |
|---|--|

8. Time in Position: 1.52 (years) (overall average for unit)

9. Role during this training period.

- |   |   |
|---|---|
| <p>[ 1] Troop Commander</p> <p>[ ] Troop Executive Officer</p> <p>[ 3] Platoon Leader</p> <p>[ 1] Platoon Sergeant</p> <p>[ 5] Tank/Bradley Commander</p> <p>[15] Tank/Bradley Gunner</p> | <p>[10] Tank/Bradley Driver</p> <p>[ 1] Driver (other)</p> <p>[ 3] Tank Loader</p> <p>[ ] Squad Leader</p> <p>[ ] Dismounted Scout</p> <p>[ 1] Other (please specify)<br/><u>section sgt.</u></p> |
|---|---|



10. Crew position during the orientation course (only).

[11]	Vehicle Commander	[ 3]	Loader
[11]	Driver	[14]	Gunner
[ 3]	FDC Workstation Operator	[  ]	FSE Operator
[  ]	CES Workstation Operator	[  ]	FABTOC Workstation Operator
[  ]	CTCP Workstation	[  ]	UMCP Workstation Operator
[  ]	Operator	[ 1]	Other (please specify)
	TACP Operator		<u>gunner/loader</u>

N/A for this summary:

11. How many times have you trained in SIMNET in the past 2 years? \_\_\_\_\_ (separate visits)
12. How many times have you trained in CCTT in the past 2 years? \_\_\_\_\_ (separate visits)
13. How many NTC rotations have you completed in the past 2 years? \_\_\_\_\_ (rotations)

## Unit Members

### Post Orientation Course (Mounted)

1. Were you the crew member using the Route Execution Guide (navigation instructions for each vehicle) during the orientation course?

Yes [ 15]      No [ 23]      NR [ 2]

(If you answered No, go to question 6 on page 6)

2. Were you able to follow the instructions as they were written in the Route Execution Guide?

Yes [ 16]      No [ 2]      NR [ 22]

3. Was the route sketch accurate? (checkpoints, start and release points, and group locations)

Yes [ 15]      No [ 2]      NR [ 23]

4. Were you and your crew able to identify every vehicle in each group as written in the Route Execution Guide?

Yes [ 15]      No [ 12]      NR [ 23]

If No, place an "X" in the box by the most appropriate reason:

<input type="checkbox"/>	The vehicle/model could not be recognized in the simulation environment.
<input type="checkbox"/>	You were not familiar with that vehicle/model.
<input type="checkbox"/>	Other:

5. Should the Route Execution Guide be revised?

Yes [ 3]      No [ 14]      NR [ 23]

6. The orientation course is intended to familiarize you with the CCTT environment. Do you feel you are now better prepared to participate in platoon and troop level training in CCTT?

Yes [ 37]      No [ 2]      NR [ 1]

7. Do you feel the orientation course should be revised?

Yes [ 10]      No [ 28]      NR [ 2]

8. Do you feel everyone who will participate in CCTT training should take this course?

Yes [ 38]      No [ 0]      NR [ 2]

# Unit Support Workstation Operators Post Orientation Course (Workstation)

1. Did you use the following materials during the orientation course?

**Materials**  
Unit Support Workstation Execution Guidelines  
Event Guide

Yes	No
4	
	4

2. Were you able to understand your tasks as they were written in the Workstation Execution Guidelines?

Yes [ 4]      No [   ]      N/A [   ]

3. Were you able to perform your tasks as they were written in the Workstation Execution Guidelines?

Yes [ 3]      No [ 1]      N/A [   ]

4. As a workstation operator, do you feel there were any activities you performed during the simulation exercise that will help you execute similar activities in live training situations?

Yes [ 1]      No [ 3]      N/A [   ]      Don't Know [   ]

5. Did you feel the Event Guide presented a clear picture of the events during the course?

Yes [ 1]      No [ 2]      N/A [ 1]

6. Based upon the Event Guide, did you know what tasks to perform and when to perform them?

Yes [ 2]      No [ 1]      N/A [ 1]

7. The orientation course is intended to familiarize you with the CCTT environment. Do you feel you are now better prepared to participate in platoon and troop level training in CCTT?

Yes [ 4]      No [   ]

8. Do you feel the orientation course should be revised?

Yes [   ]      No [ 4]

9. Do you feel that everyone who will be a unit support workstation operator should take this course?

Yes [ 4]      No [   ]

## Unit Members, Post-Exercise Scout Platoon Exercises

This survey references the following tables:

**PSF1** - Scout Platoon Fundamental, Reconnaissance

**PSM1**- Scout Platoon Zone Reconnaissance, Zone Reconnaissance

**PSM2**- Scout Platoon Zone Reconnaissance, Contact with OPFOR Brigade Recon

1. Check (✓) whether you used any of the following materials to prepare for or execute the tables listed above? (NR = no response to the question)

**Materials**

MTC Troop OPORD  
MTC Troop FRAGO  
Overlays  
Signal Operating Instructions  
Other (list): \_\_\_\_\_  
\_\_\_\_\_

Yes	No	NR
22	8	7
23	9	5
33	2	2
7	17	13

If you answered **No** to all,  
go to question 4 on page 4

If you answered **Yes** to at least one choice, do not skip any questions in this survey

2. Did the materials provide enough information to execute the tasks for each table?

**Yes** [ 31]    **No** [ 3]    **NR** [ 3]

3. Did you receive the materials you needed to effectively execute these tables?

**Yes** [ 26]    **No** [ 6]    **NR** [ 5]

4. The following three segments (a-c) contain questions which focus on the tasks listed for each table. Check (✓) the boxes provided which best answer the questions.

**a. PSF1 Reconnaissance:**

Conduct a Route Reconnaissance, Conduct an Area/zone Reconnaissance, Execute Actions on Contact, Conduct Passive Air Defense Measures, Destroy an Inferior Force

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	30	1	6		
Could the tasks be performed?	34	3			
Did all the tasks occur during the exercise?	12	17	7		1
Did you receive sufficient cues during the exercise to perform the tasks?	24	2	8	2	1
Did the exercise improve coordination between ground and air troop elements?	12	8	12	4	1
Was the difficulty of the table about right?	23	2	10		2

**b. PSM1 Zone Reconnaissance:**

Conduct an Area/Zone Reconnaissance, Conduct Tactical Movement

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	28		2	2	5
Could the tasks be performed?	29	1		2	5
Did all the tasks occur during the exercise?	19	6	4	2	6
Did you receive sufficient cues during the exercise to perform the tasks?	25		4	3	5
Did the exercise improve coordination between ground and air troop elements?	18	4	7	3	5
Was the difficulty of the table about right?	22	1	7	2	5

**Note:** Due to time constraints, this table was run the following day...no data was captured

**c. PSM2 Contact with OPFOR Brigade Reconnaissance:**

Conduct an Area/zone Reconnaissance, Destroy on Inferior Force, Conduct Tactical Movement,  
Execute Actions on Contact, Conduct Passive Air Defense Measures, React to Air Attack Drill

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?					
Could the tasks be performed?					
Did all the tasks occur during the exercise?					
Did you receive sufficient cues during the exercise to perform the tasks?					
Did the exercise improve coordination between ground and air troop elements?					
Was the difficulty of the table about right?					

5. Do you think any tasks or activities you performed during the simulation exercise will help you execute similar tasks or activities in live training situations?

Yes [ 8]      No [ 2]      NR [ 27]

## Unit Members, Post-Exercise Scout Platoon Exercises

This survey references the following tables:

**PSM3-** Scout Platoon Zone Reconnaissance, Contact with OPFOR CRP and FSE

**PSM4-** Scout Platoon Zone Reconnaissance, Establish Screen

**PSM5-** Scout Platoon Zone Reconnaissance, Security Operations Against OPFOR AGMB

1. Check (✓) whether you used any of the following materials to prepare for or execute the tables listed above? (NR = no response to the question)

Materials	Yes	No	NR
MTC Troop OPORD	21	9	10
MTC Troop FRAGO	21	11	8
Overlays	32	4	4
Signal Operating Instructions	14	17	9
Other (list): _____			
_____			

If you answered **No** to all,  
go to question 4 on page 4

If you answered **Yes** to at least one choice, do not skip any questions in this survey

2. Did the materials provide enough information to execute the tasks for each table?

Yes [ 32]    No [ 1]    NR [ 7]

3. Did you receive the materials you needed to effectively execute these tables?

Yes [ 32]    No [ 1]    NR [ 7]

4. The following three segments (a-c) contain questions which focus on the tasks listed for each table. Check (✓) the boxes provided which best answer the questions.

**a. PSM3 Contact with OPFOR CRP and FSE:**

Conduct an Area/zone Reconnaissance, Execute Actions on Contact, Battle Drill 3: React to Indirect Fire Drill, Conduct Overwatch/Support by Fire

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	36		2	1	1
Could the tasks be performed?	35	2	1	1	1
Did all the tasks occur during the exercise?	30	4	4	1	1
Did you receive sufficient cues during the exercise to perform the tasks?	34		4	1	1
Did the exercise improve coordination between ground and air troop elements?	33		4	2	1
Was the difficulty of the table about right?	32		5	2	1

**b. PSM4 Establish Screen:**

Conduct a Screen, Battle Drill 3: React to Indirect Fire Drill

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	35		2		3
Could the tasks be performed?	33	1	3		3
Did all the tasks occur during the exercise?	32	1	4		3
Did you receive sufficient cues during the exercise to perform the tasks?	34		3		3
Did the exercise improve coordination between ground and air troop elements?	31		5	1	3
Was the difficulty of the table about right?	31		5	1	3

**c. PSM5 Security Operations Against OPFOR AGMB:**

Conduct a Screen, Displace to a Successive Screen Line or Platoon BP, Conduct a Hasty Occupation of Platoon BP, Conduct Platoon Defense

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	34		2		4
Could the tasks be performed?	31	2	2		4
Did all the tasks occur during the exercise?	26	4	5		5
Did you receive sufficient cues during the exercise to perform the tasks?	32		3		5
Did the exercise improve coordination between ground and air troop elements?	29		5	1	5
Was the difficulty of the table about right?	29	1	4	1	5

5. Do you think any tasks or activities you performed during the simulation exercise will help you execute similar tasks or activities in live training situations?

Yes [ 32]      No [ 1]      NR [ 7]

## Unit Members, Post-Exercise Cavalry Troop Exercises

This survey references the following tables:

**TCF1** - Cavalry Troop Fundamental, Reconnaissance

**TCM1**- Cavalry Troop MTC, Zone Reconnaissance

**TCM2**- Cavalry Troop MTC, Contact with OPFOR Brigade Recon

1. Check (✓) whether you used any of the following materials to prepare for or execute the tables listed above?

Materials	Yes	No	NR
MTC Troop OPOD	49	12	3
MTC Troop FRAGO	37	19	8
Overlays	56	8	
Signal Operating Instructions	32	21	11
Other (list): _____			
_____			

If you answered **No** to all,  
go to question 4 on page 4

If you answered **Yes** to at least one choice, do not skip any questions in this survey

2. Did the materials provide enough information to execute the tasks for each table?

**Yes** [ 55]      **No** [ 1]      **NR** [ 8]

3. Did you receive the materials you needed to effectively execute these tables?

**Yes** [ 53]      **No** [ 3]      **NR** [ 8]

4. The following three segments (a-c) contain questions which focus on the tasks listed for each table. Check (✓) the boxes provided which best answer the questions.

- a. **TCF1 Reconnaissance:** Perform a Route Reconnaissance, Organize Troop CSS, Operate a Troop Command Post, Perform Zone Reconnaissance, Performs Actions on Contact, Take Active AD Measures Against Hostile Aircraft, Pass Combat Information and Orders

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	57	1	5	1	
Could the tasks be performed?	58	2	3	1	
Did all the tasks occur during the exercise?	41	6	15	1	1
Did you receive sufficient cues during the exercise to perform the tasks?	54	2	7	1	
Did the exercise improve coordination between ground and air troop elements?	40	5	15	4	
Was the difficulty of the table about right?	52	4	7	1	



**b. TCM1 Zone Reconnaissance:**

Perform Zone Reconnaissance, Conduct Tactical Movement, Operate the Troop Command Post, Pass Combat Information and Orders, Organize Troop CSS

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	55	1	7	1	
Could the tasks be performed?	56	1	6	1	
Did all the tasks occur during the exercise?	47	3	12	1	1
Did you receive sufficient cues during the exercise to perform the tasks?	54	1	7	2	
Did the exercise improve coordination between ground and air troop elements?	42	3	16	3	
Was the difficulty of the table about right?	52	1	8	1	2

**c. TCM2 Contact with OPFOR Brigade Reconnaissance:** Perform Movement to Contact, Conduct Tactical Movement, Take Active Air Defense Measures Against Hostile Aircraft, Perform Actions on Contact, Pass Combat Information and Orders, Operate the Troop Command Post

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	52	1	5	1	5
Could the tasks be performed?	52	1	4	1	6
Did all the tasks occur during the exercise?	44	4	9	1	6
Did you receive sufficient cues during the exercise to perform the tasks?	49	1	7	1	6
Did the exercise improve coordination between ground and air troop elements?	39	2	15	2	6
Was the difficulty of the table about right?	46	4	5	1	8

5. Do you think any tasks or activities you performed during the simulation exercise will help you execute similar tasks or activities in live training situations?

Yes [ 54]    No [ 6]    NR [ 4]

# Unit Members, Post-Exercise Cavalry Troop Exercises

This survey references the following tables:

**TCM3-** Cavalry Troop MTC, Contact with OPFOR CRPs and FSE

**TCM4-** Cavalry Troop MTC, Establish Screen

**TCM5-** Cavalry Troop MTC, Delay Against OPFOR AGMB

1. Check (✓) whether you used any of the following materials to prepare for or execute the tables listed above?

Materials	Yes	No	NR
MTC Troop OPORD	51	13	5
MTC Troop FRAGO	50	15	4
Overlays	55	12	2
Signal Operating Instructions	36	23	10
Other (list): _____			
_____			

If you answered **No** to all,  
go to question 4 on page 4

If you answered **Yes** to at least one choice, do not skip any questions in this survey

2. Did the materials provide enough information to execute the tasks for each table?

**Yes** [ 60]    **No** [ 1]    **NR** [ 8]

3. Did you receive the materials you needed to effectively execute these tables?

**Yes** [ 59]    **No** [ 2]    **NR** [ 8]

4. The following three segments (a-c) contain questions which focus on the tasks listed for each table. Check (✓) the boxes provided which best answer the questions.

- a. **TCM3 Contact with OPFOR CRPs and FSE:** Perform Movement to Contact, Perform Actions on Contact, Perform Hasty Attack, Operate the Troop Command Post, Pass Combat Information and Orders

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	63		5		1
Could the tasks be performed?	63	1	4		1
Did all the tasks occur during the exercise?	55	3	10		1
Did you receive sufficient cues during the exercise to perform the tasks?	62		6		1
Did the exercise improve coordination between ground and air troop elements?	44	2	15	7	1
Was the difficulty of the table about right?	54	3	10	5	2

**b. TCM4 Establish Screen:** Perform Screen Operations, Operate the Troop Command Post, Pass Combat Information and Orders, Delay in Troop Sector

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	66		3		
Could the tasks be performed?	65	1	3		
Did all the tasks occur during the exercise?	57	2	10		
Did you receive sufficient cues during the exercise to perform the tasks?	62		6		1
Did the exercise improve coordination between ground and air troop elements?	41	5	15	8	
Was the difficulty of the table about right?	60	2	6	7	1

**c. TCM5 Delay Against OPFOR AGMB:**

Delay in Troop Sector, Perform Actions on Contact, Perform Passage of Lines, Pass Combat Information and Orders, Operate the Troop Command Post

	Yes	No	Unsure	N/A	NR
Considering the table intent, was the focus placed on the appropriate tasks?	64		4		1
Could the tasks be performed?	64		4		1
Did all the tasks occur during the exercise?	64	1	3		1
Did you receive sufficient cues during the exercise to perform the tasks?	54	5	8	1	1
Did the exercise improve coordination between ground and air troop elements?	40	4	14	10	1
Was the difficulty of the table about right?	61		7	2	1

5. Do you think any tasks or activities you performed during the simulation exercise will help you execute similar tasks or activities in live training situations?

Yes [ 60]      No [ 4]      NR [ 5]